

TECHNOLOGY DEPT:

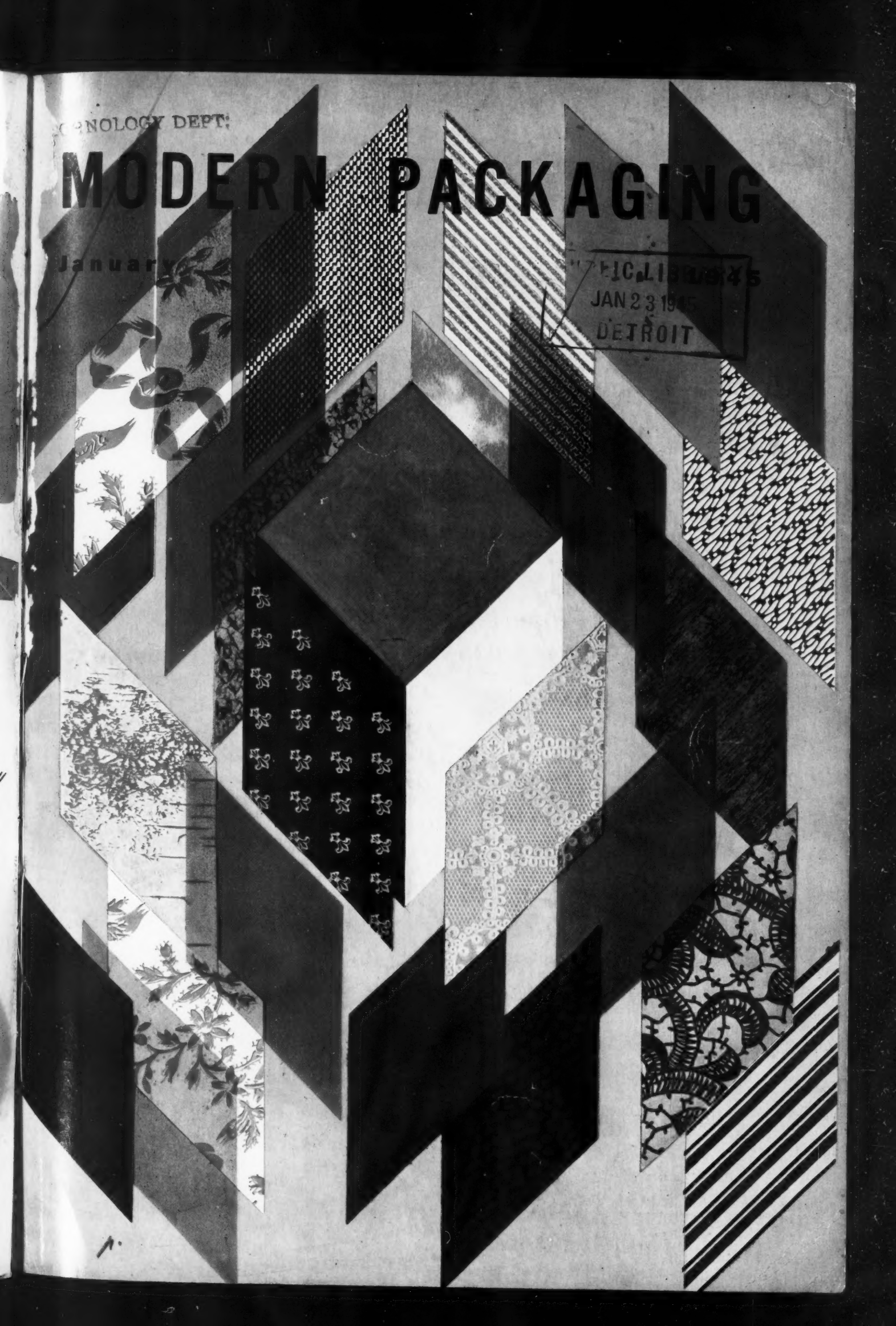
MODERN PACKAGING

January

710.113.045

JAN 23 1945

DETROIT





FREE: A right arm for you

(any time you can use it!)

NO STRINGS attached to this offer.

The arm you see here belongs to an American Can "trouble-shooter." He'll gladly put it, his brains, and the technical skill of the entire organization at your disposal.

Should you run into any mechanical difficulties—or packaging headaches—pick up the telephone and call us. We'll have him come right over. Day after day he irons out many a technical quirk for packers. Will for you, too.

But why wait for trouble before calling for a friendly hand to help?

Far-seeing packers have been coming to us with their future plans and problems for modernizing and improving

equipment and production methods. They are keenly interested in keeping abreast of the new competition to come.

The wartime experience we've gained by supplying ingenious containers to the Services may be easily adapted to your new problems. Perhaps with some mighty interesting results, too.

Our representative is available any time. Call him, or write—



American Can Company

230 PARK AVENUE • NEW YORK 17, N. Y.

PUBLIC LIBRARY
JAN 23 1945
DETROIT

Producers of

Metal and Molded Caps for Glass Packages



Phoenix Metal Cap Co., Chicago 8 and Brooklyn 18

Elmer Jacobs

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IN THIS ISSUE

We start the New Year with an up-to-the-minute Washington survey on the availability of all types of packaging materials—papers, cork, metals, glass, rubber, plastics, adhesives—and of fabrication facilities. Some 45 items are analyzed authoritatively as to present near-term and long-term supply and the trend of WPB controls. Your New Year's planning should start with *Washington Review*, p. 131.

Cover—This arrangement of cube and planes represents an abstract conception of what goes through a designer's mind when planning a new box covering. Papers are reproductions of actual watches. The artist, Peter Piening.

All editorial contents bearing on military subjects have been approved for publication by the Armed Services.

MODERN PACKAGING is regularly indexed in the *Industrial Arts Index*.

MODERN PACKAGING

VOLUME 13

JANUARY 1945

NUMBER 5

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Quality Medicine Plus Care in Packaging

The outstanding reputation of Parke-Davis was built primarily on the outstanding quality of their medicinal products. Contributing to their reputation, however, are the *many hidden cares* taken throughout their organization, including the packaging of their well known products.

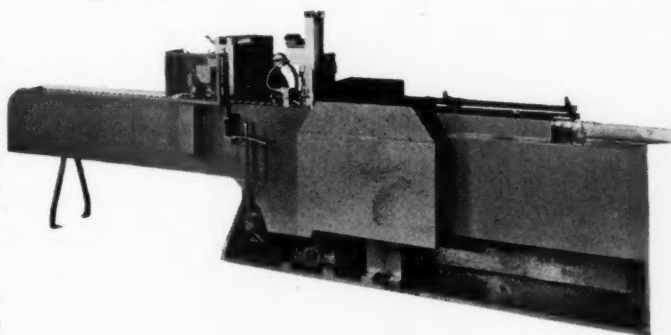
It is of *extreme importance* that no empty packages leave the Parke-Davis laboratories. A carton containing so small an item as an ampoule—weighing so little—could, unless extra precautions were taken, easily be sent to the doctor empty. An *empty* carton in a physician's medicine cabinet or bag could result in a *serious situation*.

This Redington machine is equipped with a *double safeguard*. (1) An ingenious skip carton mechanism that prevents feeding of carton through machine when no ampoule is available for filling. (2) As a further precaution, should an empty carton feed through machine, mechanism prevents the closing of carton. *No empty packages can be produced.*

This Redington is *just one of the many* packaging machines delivered to Parke-Davis since

1915. The operation is simple, sure, speedy. Ampoules are placed in pockets of the intake conveyor . . . cartons in collapsed form are stacked in magazines . . . circulars 11 x 5½" are also stacked in magazines . . . the circulars are then folded four times parallel to approximately ¾ x 5½ inches. Both ampoules and circulars are then inserted in the carton and the carton is closed by tucking in the end flaps . . . *all at the rate of 125 a minute.*

Another example of Redington ability, not only to supply high speed, efficient cartoning equipment, but also to supply special mechanical features often so vital to producers of packaged goods.



F. B. REDINGTON CO. (Est. 1897) 110-112 So. Sangamon St., Chicago 7, Ill.

REDINGTON

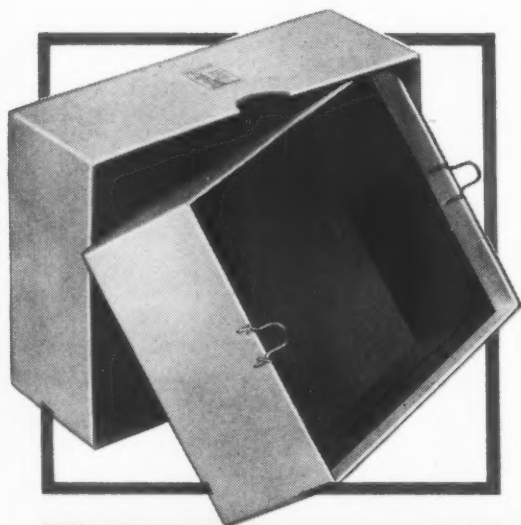
PACKAGING MACHINES

FOR CARTONING . WRAPPING . SPECIAL PACKAGING

For Freedom's Sake
— Buy War Bonds



★ **SOMETHING TO GET YOUR
TEETH INTO!**




YES, the dental plate is just one of the hundreds of items that the dental profession is shipping in Mason MailMasters.

For safe, convenient shipping of all small parts; where safety, strength and assured delivery is a prime requisite... Mason MailMasters are doing a better job.

The **MASON BOX COMPANY**

ATTLEBORO FALLS, MASS. — 175 5TH. AVE. — NEW YORK



Thinner than a fairy's wing
...yet acids can't hurt it!

With **Geon** it's the *combination* of properties that counts

THAT flexible plastic film in the picture is 4/1000 of an inch thick. Yet it remains unaffected even by nitric acid. That's because it's made from one of the GEONS, a new group of polyvinyl materials whose long list of unusual properties includes resistance to acids and other corrosive chemicals.

But one property is important chiefly in its relationship to other properties. That's why we say, with GEON it's the *combination* of properties that counts. Examine this list. Try to imagine the thousands of combinations that can be obtained from it.

Products of GEON can be made resistant to water, oil, grease, acids, alkalies, sunlight, cold, heat, aging,

air, ozone, abrasion, flame, mildew, creasing and many others. They may be permanently flexible, waterproof, light weight, odorless, tasteless. They can be made in a wide range of colors. And they can be heat sealed.

GEON can be extruded, pressure or injection molded. It can be calendered or cast into sheet or film. It may be used as a coating for textiles and papers of all kinds. Its almost limitless applications extend into the plastics, packaging, textile, food, rubber, paper, clothing, shoe and many other fields. Probably many of its most important applications have yet to be developed.

Right now all the GEONS are subject to allocation by the War Production Board. Limited quantities may be had for experiment. And our development staff and laboratory facilities are available to help you work out any special problem or applications. For more complete information write Department LL-1, Chemical Division, The B. F. Goodrich Company, 324 Rose Building, E. Ninth and Prospect, Cleveland 15, Ohio.



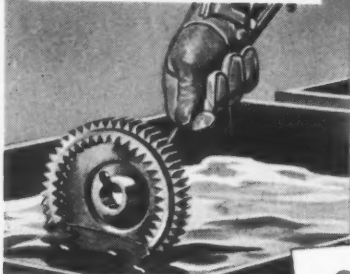
CHEMICAL DIVISION
THE B. F. GOODRICH COMPANY

ROSE BUILDING, E. NINTH & PROSPECT, CLEVELAND 15, OHIO

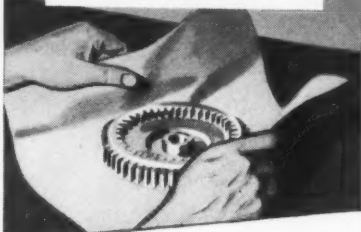
8 Steps to Tokio...

AND BETTER POSTWAR PACKAGING!

1 DIP IN RUST PREVENTIVE—which coats the metal itself.



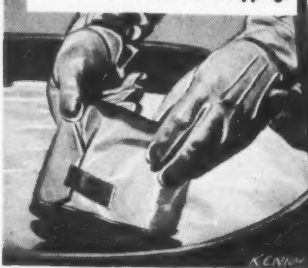
2 WRAP IN GREASE-PROOF PAPER—which keeps oil in, dust out.



3 WRAP IN PAPER COATED WITH MICRO-CRYSTALLINE WAX.



4 DIP IN MICRO-CRYSTALLINE WAX—to seal the wrapping.

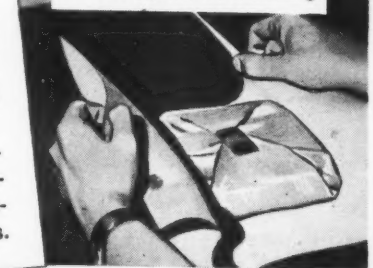


● Now protecting ordnance parts on the long, tough road to Tokio, Socony-Vacuum Micro-Crystalline Waxes promise unlimited possibilities for peacetime packaging.

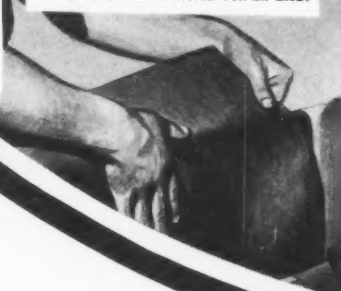
For example, many postwar planners will want this same light-weight, flexible, waterproof protection for spare parts to be stored on dealers' shelves. Others will want it for foods, medicines and other perishables.

Micro-Crystalline Waxes are marketed as Socony-Vacuum Process Products. See your Process Products representative for application to your needs.

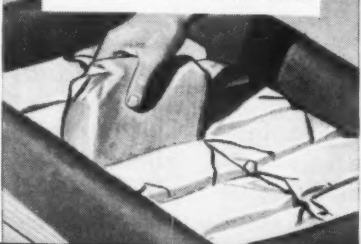
5 WRAP AGAIN IN PAPER—for added protection in handling.



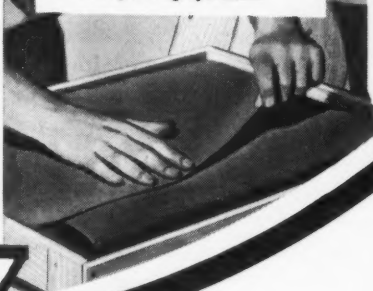
6 LINE SHIPPING CRATE WITH ASPHALT LAMINATED PAPER BAG.



7 PLACE PACKAGE IN SHIPPING CRATE—to save critical metal.



8 SEAL FLAPS OF BAG—to complete waterproofing operation.



*Call in
Process Products,
Research
and Service—*



**Process
Products**

SOCONY-VACUUM

**SOCONY-VACUUM
OIL CO., INC.**

26 BROADWAY, NEW YORK 4, N. Y.
Standard Oil of N. Y. Div. • White Star Div.
Lubrite Div. • Chicago Div. • White Eagle Div.
Wadhams Div. • Magnolia Petroleum Co.
General Petroleum Corporation of California

THEY KNOW WHAT THEY'RE FIGHTING FOR

*"... when Death whispers in one ear
and God whispers in the other"*

As the New Year marks a renaissance of faith and hope, we feel it fitting to reprint *
the following message by Corporal Andrew Ruscansky, Jr., U.S.A. Air Corps.

"The Jerries came over in waves, spraying the field with bombs and bullets. As I lay there tense, I prayed to God. Jerry was flying so low I could see his face. I tried to get up but couldn't make it. I saw the blood staining the khaki.

"There wasn't a man on the field who hadn't prayed as I did... All had a faith which meant something to them.

"In the hospital and under merciless enemy attack, I saw this faith at work. It was a common faith...a sense of personal communion with their Maker, which gave Protestant, Catholic and Jewish boys the same inner strength. If the war has done nothing else, it has taught me tolerance. I can never distinguish hereafter between Protestant, Catholic and Jew. Too many men have died on all sides of me with prayers on their lips. A man learns to be tolerant when Death whispers in one ear and God whispers in the other."

ONE OF A SERIES OF ACTUAL STATEMENTS FROM MEN WITH THE
ARMED FORCES, EXPRESSING THE DEMOCRATIC IDEAL—A POWERFUL
WEAPON IN WAR, A PROMISE OF ENDURING PEACE FOR ALL MANKIND.

*True Confessions Magazine

Arrow is proud that it is today one of the country's largest suppliers of the boxes which hold the medals for the heroes in our Armed Forces.

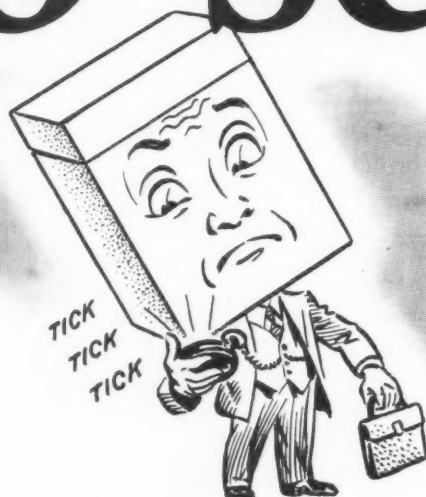
Arrow

BOXES AND DISPLAYS

ARROW MANUFACTURING COMPANY, INC., FIFTEENTH AND HUDSON STREETS, HOBOKEN, NEW JERSEY



3 seconds to sell!



That time limit would challenge an expert live salesman.

▪ Yet, in the stores, that is *all the time your silent, INANIMATE package has*—among thousands of packages bidding for attention—to catch and hold the casual eye of the passing consumer, to claim attention, arouse interest, identify your product and make an impression of quality. These are things a package *must* do to sell.

And—while *some consumers* come in prepared to ask for *some products*—surveys show that 62% to 75% of all shoppers buy up to 53.8% of their purchases *on impulse*. In other words, ½ of their purchases are items or brands they had *not* planned to buy when they entered the store.*

The burden of *selling* those impulse buyers, whose unplanned purchases total such a substantial volume, rests squarely upon your *package*!

*Consumer surveys conducted for Cellophane Division of E. I. du Pont de Nemours & Company, Incorporated.

WAY TO A BETTER SELLING PACKAGE

The Ritchie way integrates art and

artisanship—to give you a better selling package at a low unit cost. A package that quickly, unmistakably identifies, fully protects and conveniently dispenses your product. A practical, production-planned package—easy to fill or pack, easy to handle, to stack and display—but *above all* designed for eye-appeal, for quality-impression, for *beauty that sells!*

THE 5 ESSENTIALS OF A SELLING PACKAGE

1. It must be practical, production-planned, economical to manufacture, easy to fill or pack.

and conveniently dispense the product.

4. It must *proclaim* the quality and identity of your product.

3. It must be easy to handle, to stack, display.

5. It must be notably "good looking," memorable, ATTRACTIVE!

2. It must fully protect

W. C. *Ritchie* and COMPANY

8840 Baltimore Avenue, Chicago 17

NEW YORK • DETROIT • LOS ANGELES • ST. LOUIS • MINNEAPOLIS

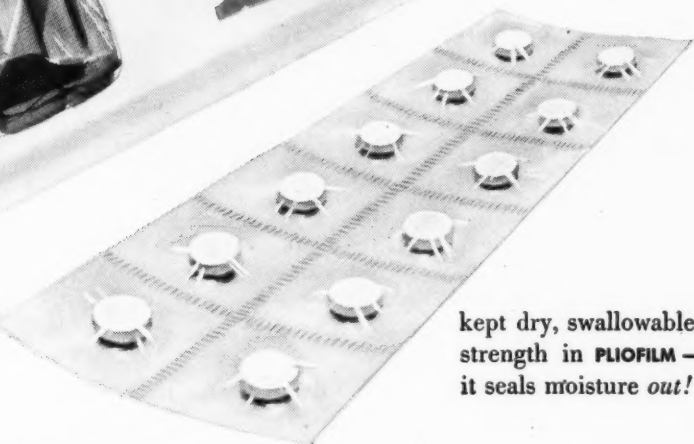
Set-Up Paper Boxes • Fibre Cans • Transparent Packages



is for Asparagus

kept garden-fresh, tender, succulent from grower to kitchen in **PLIOFILM** — because it seals moisture *in*!

and Aspirin, too



kept dry, swallowable and full strength in **PLIOFILM** — because it seals moisture *out*!

Here you have the two reasons why any moisture-sensitive product will sell *better* — after Victory — packaged in **PLIOFILM**.

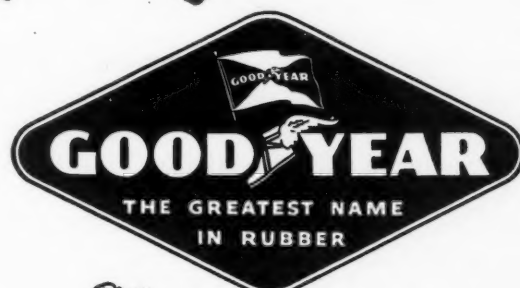
It is the best packaging material yet discovered for keeping moisture in or out.

Every military aircraft engine made in America is now being protected by **PLIOFILM**. Nothing else measures up to the job.

With peace, **PLIOFILM** will be available again for wrapping foods, drugs, tobaccos, and all other moisture-sensitive products.

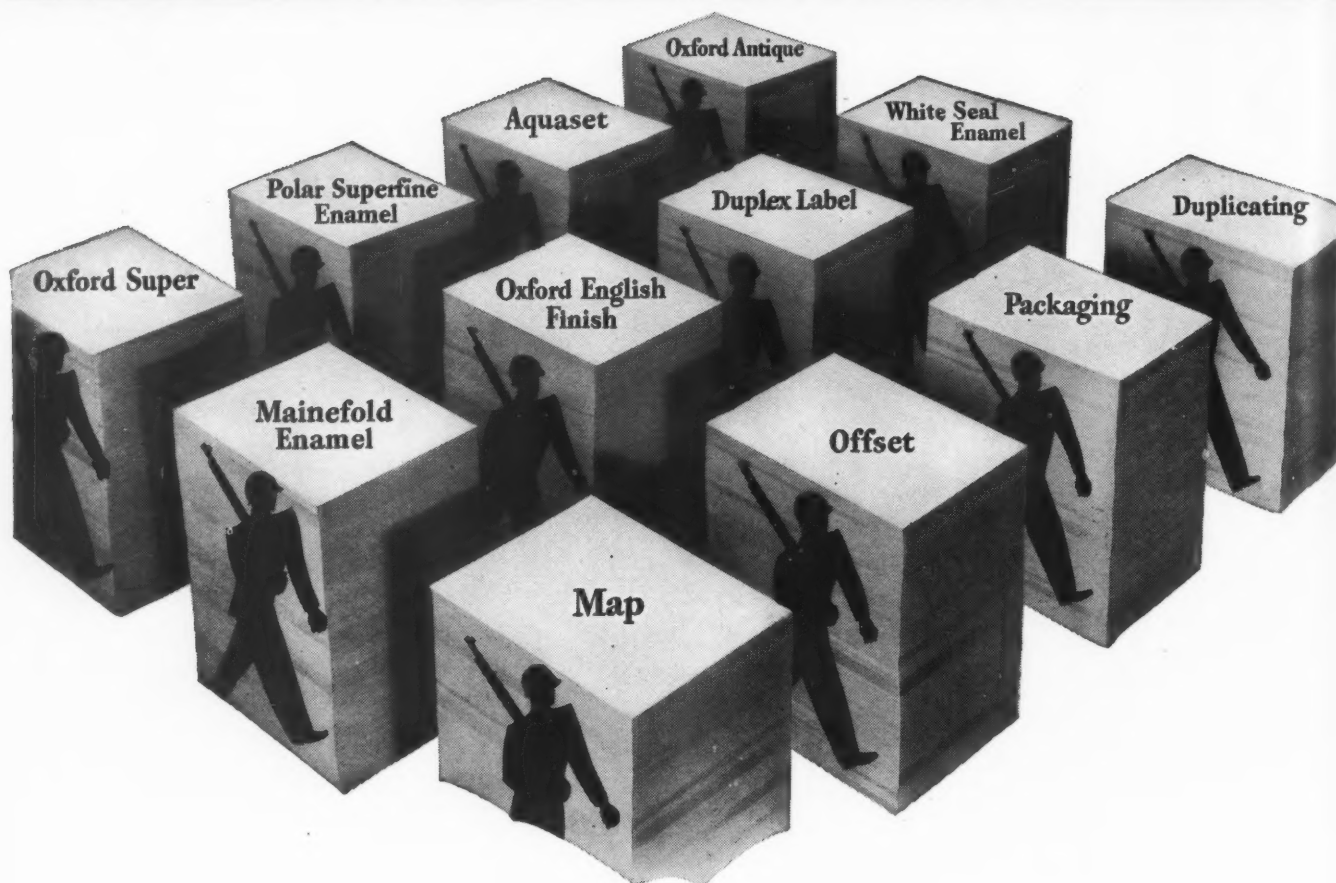
That's why you should plan now to use **PLIOFILM** on your products to give them the finest protection known — *protection that promotes sales!* Pliofilm Sales Dept., Goodyear, Akron 16, Ohio.

Pliofilm KEEPS GOOD THINGS GOOD
A PRODUCT OF GOODYEAR RESEARCH



Pliofilm — T. M. The Goodyear Tire & Rubber Company

IT'S WHAT YOU DO WITH CELLULOSE FIBRE THAT COUNTS



First things come first

Oxford papers are serving today on all fronts—home and abroad.

Those map, offset, packaging and duplicating papers in the front row go right up to the fighting lines—and beyond.

Back of them, old favorites such as Oxford Super, Mainfold Enamel and Duplex Label are helping with the battle of production. They are doing innumerable publicity and educational jobs. They are used for books and magazines for soldiers and civilians. Every Oxford paper made has a share, big or little, in the war effort.

Even though Oxford makes a thousand miles of paper a day, it is impossible to meet all of the demands. But, the fine papers still available to merchants and printers are, now as always, turning out time-saving and effective printing jobs.

After Victory, all those paper soldiers will be back fighting the battle of reconversion—playing essential roles in the competition for sales, for markets, for the interest and attention of the public.

But until that time comes, careful use of printing paper is the order of the day.

Now, more than ever before, it's what you *do* with paper that counts.



OXFORD PAPER COMPANY

230 Park Avenue, New York 17, N. Y.

MILLS at Rumford, Maine
and West Carrollton, Ohio

WESTERN SALES OFFICE:
35 East Wacker Drive, Chicago 1, Illinois

Included in Oxford's line of quality printing and label papers are: Enamel-coated—Polar Superfine, Mainfold, White Seal, Rumford Enamel, and Rumford Litho CIS; Uncoated—Engravatone, Carfax, Aquaset Offset, Duplex Label and Oxford Super, English Finish, and Antique.

1.

Here I come!

Wait a minute!
I haven't seen
a roll of Texcel
Tape for ages!

2.

Hey! I'm on
the way!

Looks like Texcel's
on the way, too

3.

Ooops—I thought you
were going to miss!

This Texcel Tape
can't miss. It's a
cinch to play a big
part in glamourizing
and protecting post-
war packages

4.

Gee, what a crowd!
Must be 5000 in the
audience tonight

That's nothing com-
pared with the crowd
of consumers who are
going to want post-
war packages sealed
with Texcel!

Texcel Tape

CELLOPHANE TAPE—
STICKS WITH A TOUCH

Made by Industrial Tape Corporation

A Division of Johnson & Johnson, New Brunswick, N.J.

Established 1867
C.F. MUELLER CO.
NEW JERSEY
JERSEY CITY

September 7, 1944

Riegel Paper Corporation
342 Madison Avenue
New York 17, N. Y.

Gentlemen:-

May I extend my sincere thanks for taking care of us so well in our unexpected requirements of several weeks ago. We fully realize that under present conditions special work of this kind is very difficult and we are aware of all that you have done for us. At this time I might add that we were sure everything would be taken care of in your usual satisfactory manner.

After doing business with a supplier for many years one acquires a confidence that under normal conditions any request will be given proper consideration. We assure you that we have that confidence in you and want to express our appreciation for your efforts during the past years. Of course, under the unusual conditions existing in the paper industry today, we have all been inconvenienced to a certain extent but we look forward to the time when peace will again be ours and we may continue our normal business relations.

Yours very truly,

C. F. MUELLER CO.
E. Francis Hertzog
E. Francis Hertzog
Purchasing Agent

EFH:EMC

"UNEXPECTED REQUIREMENTS"

Customer relations in a wartime market should be a good yardstick to use when considering future sources of supply.

This series of letters shows that we have done a good job and we feel it indicates that Riegel is the type of company you will want to work with when packaging materials become plentiful again. Let's talk over postwar packaging **now**.

RIEDEL PAPER CORPORATION

342 MADISON AVENUE
NEW YORK 17, N. Y.

Manufacturers of over 230 different protective packaging papers—plain, printed, waxed, lacquered, laminated, embossed—in every case perfected to meet our customers' individual requirements.

120



Research

No graphs, no charts, no delving into tomes on trends by this research expert. He's just a retail grocer. But daily experience makes him an expert on shelf appeal and daily contact with Mrs. Consumer makes him the most important information center for package likes and dislikes.

His views are incorporated in every H-A design for you.

HAZEL-ATLAS GLASS CO., Wheeling, W. Va.





On With the War -to Victory

Your sons and brothers . . . and ours . . .
give ALL to win the war. In the spirit of their example,
we must do our utmost.

Meanwhile, to maintain the home front and supply its
needs, we are happy to announce that TRACO Glassine
and Cellophane Wraps and Bags, and LOXTITE protective
Partitions are available, subject to war demands. Let our
experience in producing packages for food, munitions and
vital supplies to reach our fighting fronts free of moisture,
dust, rust or contamination, be applied with profit to your
own packaging problems NOW.

Our TITE-SEAL Bags are acceptable and approved for all
Methods, Grade A and B packaging of military parts.

Our LOXTITE protective Partitions are providing crash pro-
tection for munitions, fragile articles and vital food supplies.

Our heavy foil-lined laminated bags and wraps meet every
requirement for packing military objects.

Patents Applied For

*The ingenuity of our packaging experts, intensified by war experience, is
freely at your command to develop the perfect packaging for every need.*

TRACOR CORPORATION

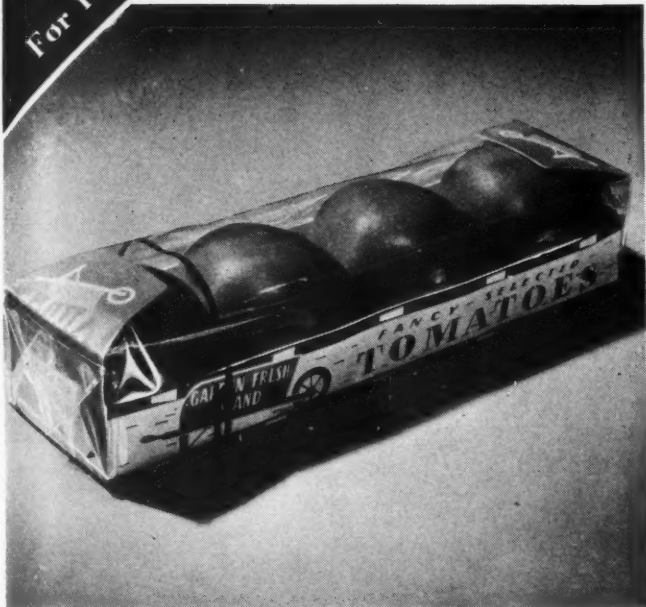
Dept. MP1, 358-368 West Ontario Street, Chicago 10, Illinois
Loxtime Division, 404-424 North Sacramento Blvd., Chicago 12, Ill.



Idea Corner

For Postwar Package Planners

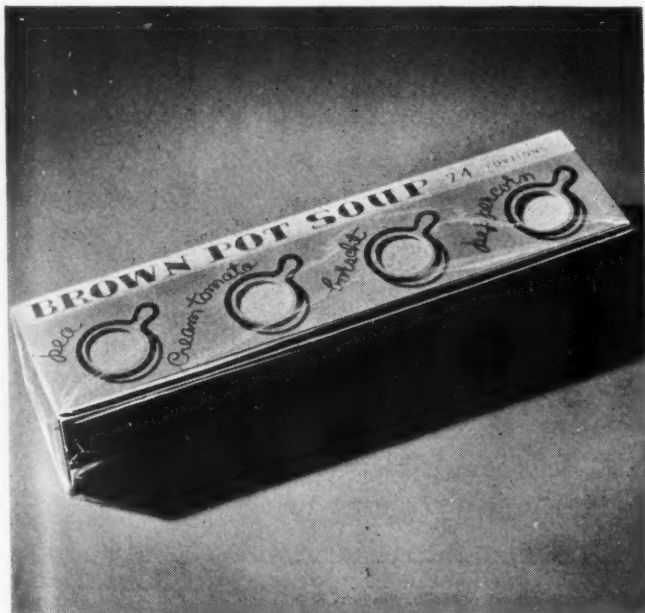
TOMATOES THAT TEMPT . . . SHIRTS THAT SIGNAL . . . SOUP THAT'S DIFFERENT . . .



IDEA NO. 1 A ripe red tomato is its own best salesman. In this package it sells on sight—not by the usual damaging "touch." This unit is very convenient to display and handle. The Cellophane tear tape permits easier opening.



IDEA NO. 2 Snow white and sparkling in Cellophane, this shirt unit signals for attention. Informative labeling puts the sales message across quickly. Packaged in Cellophane *automatically*, the special fold requires less stock and display space.



IDEA NO. 3 This multiple package attracts shoppers looking for variety—stimulates appetite appeal four times at one glance. It shows soup that looks convenient and easy to prepare. Sales climb when the package encourages impulse buying.



Basic Trends of Postwar Merchandising

Here are six fundamentals that will help to lower postwar distribution costs and speed up turnover. Use them to check *your* postwar package plans.

- 1. SELF-SERVICE:** Emphasis on self-selection and display value.
- 2. CONVENIENCE:** Size, shape, quantity, ease of use are predominant factors.
- 3. INFORMATIVE LABELING:** Need for concise information, terse selling message.
- 4. IMPULSE BUYING:** A high percentage of all buying done on impulse.
- 5. PROTECTION:** Adequate protection geared to rapid turnover.
- 6. VISIBILITY:** 85% of all buying done through the eyes. Visibility of primary importance in the package of the future.

For packaging ideas, write for our new booklet, "Idea Corner for Postwar Package Planners." E. I. du Pont de Nemours & Company (Inc.), Cellophane Division, Wilmington 98, Delaware.

Du Pont Cellophane

Better Things for Better Living . . . Through Chemistry

VISIBILITY . . . a powerful force in modern merchandising



THE same Union Paste laboratories which have contributed so much to the successful overseas shipment of war materials will be available to you for your post-war problems in packaging. The wide experience gained from constant research and continuous development of GLU-WELD water-resistant adhesives for war uses will serve to analyze correctly and efficiently peace-time conditions.

In addition to a complete line of flexible glues, stripping glues, labelling glues and pastes, we are thoroughly familiar with the problems of sealing transparent films, coated papers and coated cloths.

GLU-WELD WATER-RESISTANT ADHESIVES • FLEXIBLE GLUES • STRIPPING GLUES • TRANSPARENT FILM ADHESIVES • BOOKBINDING ADHESIVES



UNION PASTE COMPANY

QUALITY ADHESIVES SINCE 1866

1605 HYDE PARK AVENUE • HYDE PARK, MASS.



CASE, BAG AND CARTON SEALING GLUES • LABELLING ADHESIVES • LAMINATING ADHESIVES FOR FILMS, PAPERS AND CLOTHS

CUSTOM-BUILT *for* STRENGTH

NO, we haven't as yet packaged a bulldozer — but we do package its parts! Wherever the going gets really tough... where your package must meet and overcome the hazards of RUSH schedules, exposure to heat, immersion and unavoidable rough handling, and yet deliver its contents entirely without damage... it must be built to "take it".

IN no other container within its cost range are to be found the same qualities of rugged, struc-

tural strength, all-over product protection, individual styling, light-weight construction and ease of stowage. All these features and more are available to meet your specific requirements in Custom-Built set-up paper boxes.

IF you have a packaging problem, whether it be safe delivery of vital machine parts to a fighting front... or a complete re-styling of a line of cosmetics, your answer may well be the use of a set-up paper box... **CUSTOM-BUILT for YOU!**



BALTIMORE, MD. • Maryland Paper Box Co. • BOSTON, MASS. • Bicknell & Fuller Paper Box Co. • BROOKLYN, N. Y. • E. J. Trum Co., Inc. • BUFFALO, N. Y. • Thoma Paper Box Co., Inc. • CHARLOTTE, N. C. • Old Dominion Box Co. • CHICAGO, ILL. • Kroeck Paper Box Co. • COLUMBUS, OHIO • Columbus Paper Box Co. • DANVERS, MASS. • Friend Paper Box Co. • FORT WAYNE, IND. • Wayne Paper Box & Printing Corp. • HOBOKEN, N. J. • Shoup-Owens, Inc. • KANSAS CITY, MO. • Crook Paper Box Co. • LOUISVILLE, KY. • Finger Paper Box Co. • Kentucky Paper Box Co. • LOS ANGELES, CAL. • C. W. Hering • MERIDEN, CONN. • Shaw Paper Box Co. • NEWARK, N. J. • Mooney & Mooney • Newark Paper Box Co. • NEW YORK, N. Y. • A. Dorfman Co. • PAWTUCKET, R. I. • Shaw Paper Box Co. • PHILADELPHIA, PA. • Datz Mfg. Co. • Walter P. Miller Co., Inc. • Edwin J. Schoettle Co. • Geo. H. Snyder, Inc. • Sprowles & Allen, Inc. • PORTLAND, ME. • Cosco Paper Box Co. • PROVIDENCE, R. I. • Hope Paper Box Co. • Taylor Paper Box Co. • ROCKFORD, ILL. • Paul Bennett Paper Boxes, Inc. • SEATTLE, WASH. • Puget Sound Paper Box Co. • Union Paper Box Mfg. Co. • SOMERVILLE, MASS. • Consolidated Paper Box Co. • ST. LOUIS, MO. • Great Western Paper Box Co. • Moser Paper Box Co. • F. J. Schleicher Paper Box Co. • Service Paper Box Co. • UTICA, N. Y. • Utica Box Co., Inc. • WATERTOWN, WIS. • Ira L. Henry Company • WILMINGTON, DEL. • Wilmington Paper Box Co. • TORONTO, CANADA • The Fielder Paper Box Co., Ltd. • COOPERATING SUPPLIERS: Appleton Coated Paper Company • Blackstone Glazed Paper Company • Bradner Smith & Co. • Louis Dejonge & Co. • Globe Mfg. Co. • Hampden Glazed Paper & Card Co. • Hartford City Paper Co. • Hazen Paper Company • Holyoke Card & Paper Co. • Hughes & Hoffman Company • Lachman-Novosel Paper Co. • Marvellum Company • Matthias Paper Corp. • Nashua Gummed & Coated Paper Co. • Pejepscot Paper Co. • Plastic Coating Corp. • Racquette River Paper Co. • Stokes & Smith Co.



The Master Craftsmen of the
NATIONAL PAPER BOX MANUFACTURERS
Association

FOR INFORMATION OR SERVICE CONSULT THE NEAREST SET-UP BOX MANUFACTURER LISTED ABOVE

A New Picture of the

FROM CANS TO CROWNS, FIBER

AND



1. SUPPOSE YOU, as an average American, are 45. When you were only 5, Continental Can Co. began to make quality cans for food. Canned foods, with their convenience and economy, were just beginning to be the everyday part of your life they are now.



2. WHEN YOU WERE A DOUGHBOY in 1918, food in Continental cans helped you fight, just as it's helping millions of GI's everywhere today. Then, as now, Continental research developed new ideas and skills to give you new and better things in cans.



5. YOU WORKED HARD when this war began, often lunching at your desk. The liquid-tight paper containers and cups your coffee and ice cream came in are now made by Continental. So are fiber drums in which so many dry products are safely shipped.



6. WHEN THE ARMY CALLED you for procurement duty you realized the great job containers are doing in war. We're making metal and paper containers for virtually every branch of the armed forces and Lend Lease, plus hundreds of special war products.



-----Products and Divisions of Continental Can Company, Inc., 100 East 42nd Street, New York 17, N.Y.-----

CONTINENTAL PRODUCTS: Metal Containers • Fiber Drums • Paper Containers • Paper Cups • Plastic Products • Crown Caps and Cork Products • Machinery and Equipment • **OPERATING DIVISIONS:** The Container Company, Van Wert, Ohio • Keystone Drum Company, Pittsburgh, Pa. • Boothby Fibre Can Division, Roxbury, Mass. Mono Containers, Newark, N. J. • Plastics Division, Cambridge, Ohio • Bond Crown & Cork Company, Wilmington, Del. • Cameron Can Machinery Company, Chicago, Ill. • **FOREIGN SUBSIDIARIES:** Continental Can Company of Canada, Ltd., Montreal • Sociedad Industrial de Cuba, S. A., Havana.



Tune in "REPORT TO THE NATION," Saturdays at 1:30 P.M., E. W. T., over CBS coast-to-coast network. Beginning January 6.

the Continental Family

AND PAPER CONTAINERS AND PLASTICS



3. BY THE TIME YOU were 33, thousands of products besides food, from tooth powder to paint, were coming to you in sturdy, protecting cans. You bought motor oil for the first time in refinery-sealed cans, an advance pioneered by Continental.



4. REMEMBER THAT FISHING TRIP in '38? You took your favorite beer in Continental Cap-Sealed Cans because they were so convenient and easy to open. That year we started making crown caps. Since then we've made billions of them for cans and bottles.



7. WHEN YOU GET BACK on the job, you'll find a lot of things of colorful, durable plastics in your office and home—many of them fabricated by our Plastics Division. Today we're making plastic products, from bomber enclosures to battery cases.



8. LIFE BEGINS AT 40 for Continental Can Company! On our 40th anniversary, we suggest that you keep your eye on Continental for packaging and plastic products. And keep your eye on the Continental trade-mark, too! You'll be seeing the Triple-C more and more in industry and in your home.

CONTINENTAL CAN COMPANY

Keep your eye on Continental  for Packaging and Plastic Products

MODEL

JK

2 Station Automatic

VOLUME FILLER
VOLUME PACKER
GROSS WEIGHER



... for all types of powdered, granular and paste materials

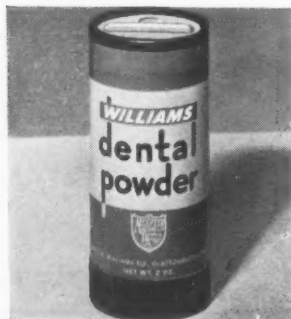
The Model JK is an Automatic Packer that will also operate as a Volume Filler or Gross Weigher. This machine fulfills every requirement for advanced means of automatically handling powdered, granular and paste materials of almost all descriptions.

The Model JK has two filling stations. When the machine is used as an Automatic Volume Packer the empty containers are elevated, causing the actual filling to take place under the amount of controlled pressure suitable for the type of material and the size of container into which it has to be packed. This same principle is used when the machine is equipped as a Packer-Weigher, except that the main portion of the contents is packed under pressure, the remainder finished by weighing for accuracy. When the

machine is used as a Volume Filler or Gross Weigher, provision can be made to incorporate a vibrating type of settling device to settle the material after filling.

The machine can be equipped for intermittent conveyor motion to facilitate handling of oval or irregularly shaped containers. With this intermittent motion, the conveyor moves just enough to deliver one container at the transfer station, thus preventing climbing and piling up of the containers.

The many new automatic features, plus the speed and accuracy of the JK, soon pay for the machine through savings on labor costs alone. It will pay to get full details and specifications — there are many features never available before — write today for bulletin which gives complete data on the Model JK!



Filled automatically on the JK at the rate of 60 per minute.



Send U.S. details on any of your packaging problems—we have the machines and the engineering background to help solve them.

Automatic Box Machinery Co. Inc.

Owning and Operating

NATIONAL PACKAGING MACHINERY CO. • CARTONING MACHINERY CORP.

18 ARBORETUM ROAD, ROSLINDALE, BOSTON 31, MASS.

Branch Offices: NEW YORK CLEVELAND CHICAGO
LOS ANGELES (KRUGH EQUIPMENT & SUPPLY CO.)

METALAM

**War emergency package
offers new peacetime
advantages**

Doughboys on every front find Metalam packages of instant coffee, dehydrated lemon juice, highly effervescent pharmaceuticals and other dry rations well guarded against moisture. Even in the humid tropics, Metalam keeps them safe and effective.

This same combination of flexible, heat-sealing aluminum foil and laminated acetate film will safely carry your hygroscopic or intolerant products such as powdered coffee and other drinks, dehydrated soups or foods, drugs and dry chemicals.

To this essential protection, add Dobeckmun's attractive multicolor printing on the acetate film, and you'll have packages that will distinguish your new products or dress up your present line to meet the intensity of postwar competition.

AVAILABLE NOW

For the present, rolls, sheets and bags of Dobeckmun Metalam are largely restricted to military use. But our research and creative facilities are available for package design, technical advice on equipment and other services that will get you to the markets earlier with your new packages. Ask for samples and suggestions, without obligation.

DOBECKMUN PACKAGING SPECIALTIES

Package design—the right combination of material, shape and design to provide protection, attractiveness and utility.

Cellophane bags—ounces to gallons; printed or plain; single or duplex; flats, squares or satchels.

"Tritect" cellophane—wax-laminated film for extra protection, in rolls, sheets or bags.

"Metalam"—heat-sealing aluminum foil permanently bonded to tough film, to give

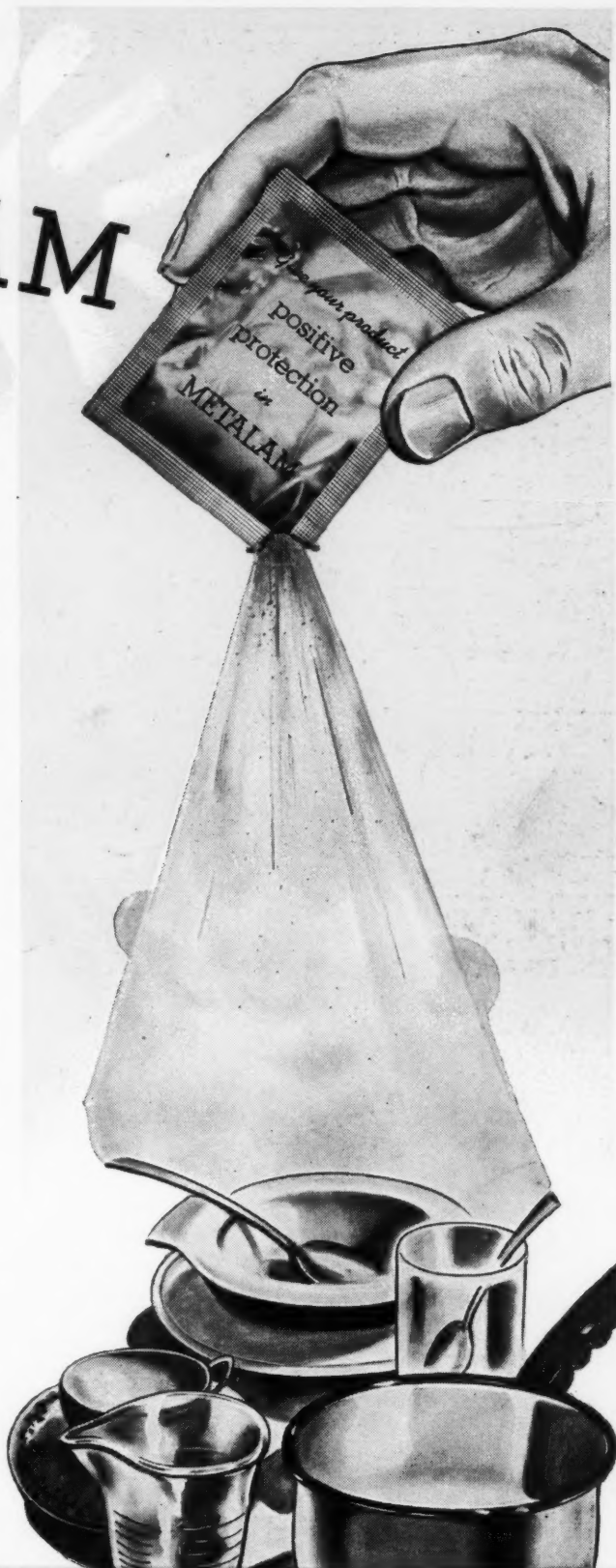
your product continuous, positive protection.

Printed films and foils—in sheets and rolls.

Laboratory testing—complete facilities for pretesting packages under all conditions of climate and service, to insure the right answer in advance.

"Tritect" and **"Metalam"** are trademarks of The Dobeckmun Company.

Package patents Nos. 2,121,988 and 2,125,318



CONVERTERS — PRINTERS — LAMINATORS of FILMS and FOILS

THE **DOBECKMUN** COMPANY

CLEVELAND 13, OHIO

WESTERN SALES HEADQUARTERS • SAN FRANCISCO 4, CALIF.

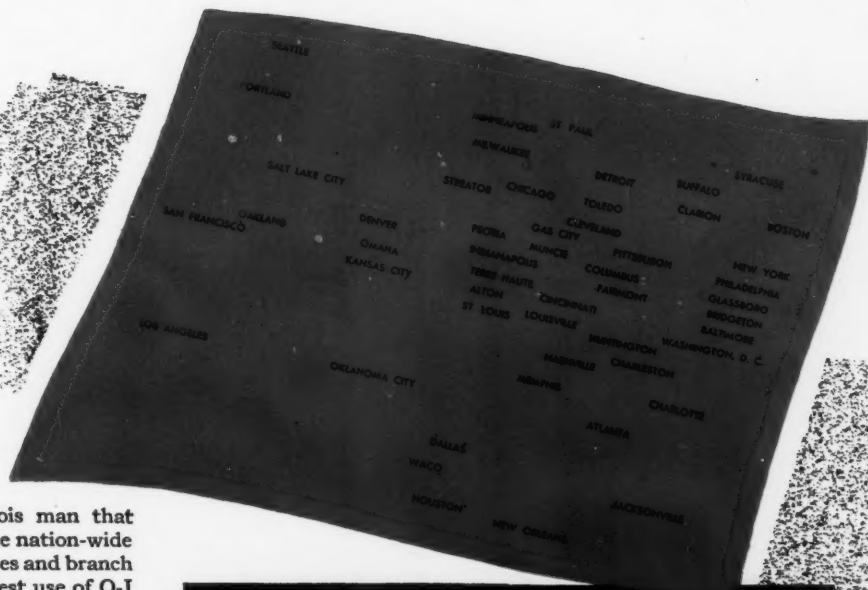
OFFICES IN NEW YORK, BOSTON, PHILADELPHIA, CHICAGO AND LOS ANGELES • REPRESENTATIVES EVERYWHERE



We are the *original* manufacturers for the U. S. Army, of the METAL presentation boxes for the Purple Heart, the Bronze Star Medal and the Distinguished Flying Cross. Although we are busy now on war commitments, we are making plans to be ready soon after Victory with a new line of unusual boxes designed for the postwar world.

F. H. NOBLE & COMPANY 559 West 59th Street Chicago 21, Illinois

How You Can Easily Use Nation-Wide Duraglas Container Customer Service



A Lift to Production—The Owens-Illinois man that calls on you is your local representative in the nation-wide network of Owens-Illinois factories, warehouses and branch offices. It is his job to help you make the best use of O-I Customer Service from your production line to your customers' minds. He has a story of container cooperation that's worth knowing. Ask to hear it.

O-I Customer Service is localized and is backed by the most completely equipped glass container Research Laboratories in America.

A Lift to Distribution—"Sold so fast, we had trouble keeping the display filled." That is what Elery Holt, Manager of the Bellman store, 3415 Monroe Street, Toledo, Ohio said about their Stop and Go display of tempting fruits and vegetables in Duraglas jars. By alternating differently colored products, the eye-buy-appeal of the display was greatly increased. "We also made additional sales in other products located near this exhibit." More proof that your products sell better in glass.

A "Lift to Sales"—This demonstration of why Duraglas containers are better packages for the consumer is a part of the continuous advertising which is your assurance that the advantages of glass products are known and appreciated.

The featured illustrations in this current release are deliberately *dramatic* and *unusual*—the first photograph ever made of coffee aroma—an underwater swimmer holding a resealed jar of coffee. But the facts these illustrations represent are *simple, practical, facts* which any housewife understands: That Duraglas jars are *resealable* packages which make possible completely moisture-tight, air-tight protection and maintain flavorful freshness from the moment the vacuum-seal of the jar is broken until the last spoonful of coffee is used.

OWENS-ILLINOIS GLASS COMPANY
TOLEDO 1, OHIO

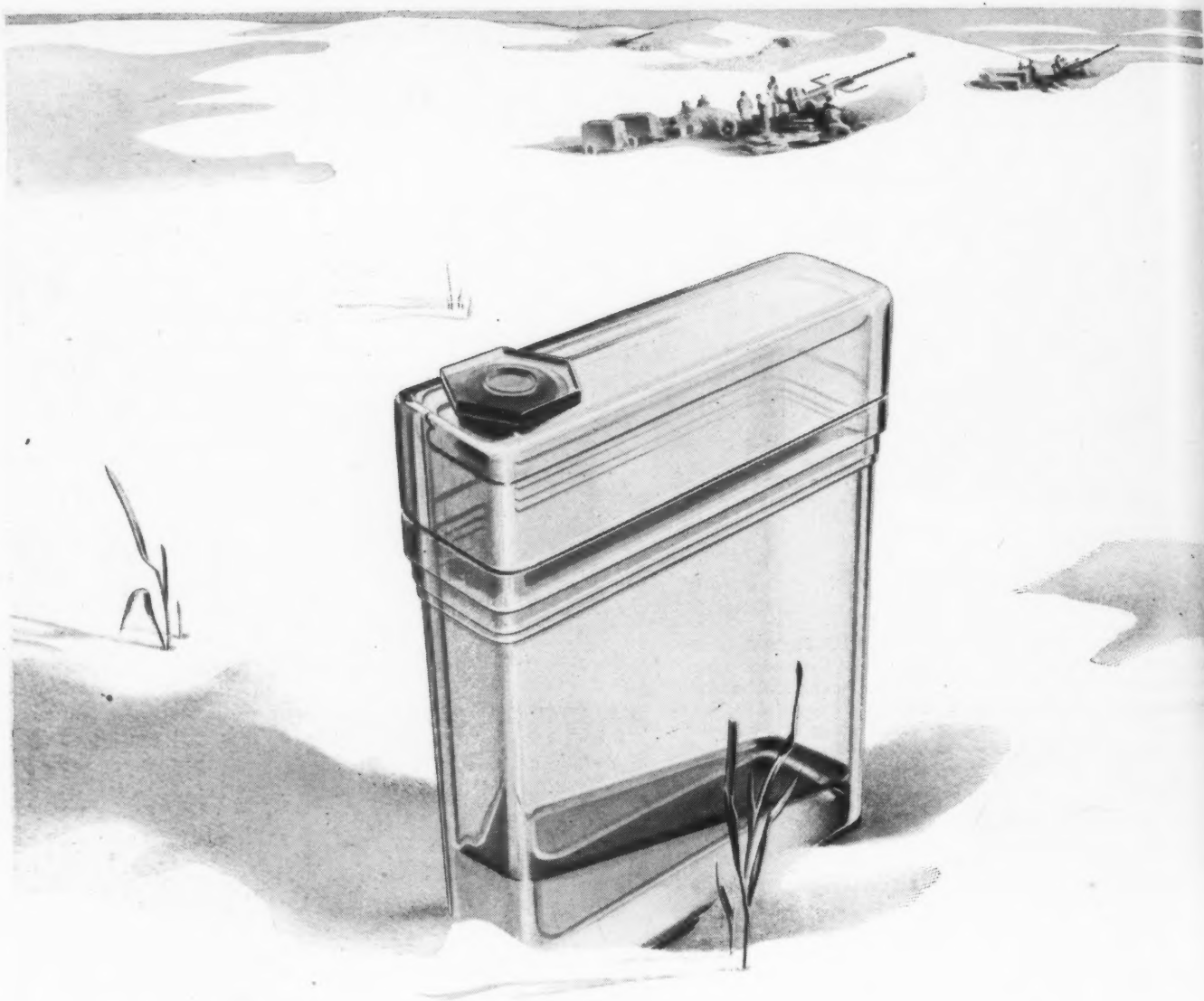
Duraglas

CONTAINERS

Preserve, Protect AND SELL BY SIGHT



Enjoy a "Lift to Living" that is a "Lift to Your Selling"—Fred Waring and his Pennsylvanians, coast-to-coast on the Blue Network every week. See your local newspaper for time and station.



GUNGA DIN TO A SOLDIER

LIKE THE HERO of Kipling's famous poem, this army flask is more than just a water boy. It serves first as a container for emergency rations and medical supplies. Then, after these are transferred to the soldier's pockets, the flask is sealed with pressure-sensitive tape and filled with water through the opening in the top. Now it is an emergency water supply—expendable when no longer needed.

The flask is Lumarith* E.C. molded plastic—tough, water-proof and non-shatterable even in extremes of temperature. Instructions for use of the original contents are impressed on the flask wall where they can't be lost or destroyed. The sealing tape is Lumarith too.

Product designers and manufacturers are making increased use of the multi-purpose package, finding that it can add consumer appeal and break down sales resistance. Other things being equal, the package with a re-use feature can often swing the sale.

For information on Lumarith plastics and the packaging ideas they inspire, consult the Sales Development Department of the Celanese Plastics Corporation, a division of Celanese Corporation of America, 180 Madison Avenue, New York 16, N. Y.

*Reg. U. S. Pat. Off.

LUMARITH* E.C.

A Celanese Plastic*



THIS BOTTLE A "GUINEA PIG"?

*Yes! It helps forward research's
relentless quest for better glass*

EVERY DAY, inspectors at Armstrong's glass plants select bottles by controlled sampling methods from each production lot that comes rolling through the lehrs and send them to the laboratory. Here, these "guinea pigs" are investigated so carefully and accurately that analytical equipment made of platinum is necessary!

The chemist uses crucibles and evaporating dishes made of platinum, rather than ordinary equipment, to make sure that no reaction from the utensils themselves affects the results.

Such extreme care in these analyses is important for two reasons. A change in amount of any of the glass-making oxides present in the ware affords an accurate indication of its quality. And since only a minute

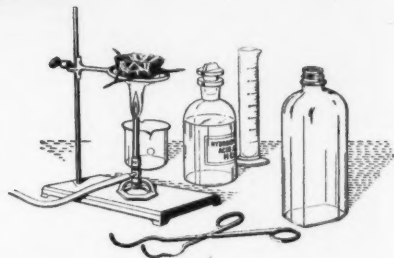
variation in quantity can make a big difference in quality, the results of the analyses must be exact.

But in addition to providing an important check on the quality of the finished ware, the analyses also help Armstrong's glass chemists, physicists, and engineers to improve the quality of future glass. They know, of course, the comparative amounts of each ingredient that went into the original batch. And the actual chemical make-up of the ware that is produced provides them with valuable data on the reaction of the ingre-

dients in the glass-making process.

This type of close coordination between research and actual glass production, constantly in effect between Armstrong's glass factories and laboratories, is one of the big reasons why Armstrong's glass has been, and will continue to be, top quality.

For further interesting details on the making of fine glass, send for your free copy of Armstrong's illustrated booklet, "Men and Glass." Address Armstrong Cork Co., Glass and Closure Div., 5901 Prince Street, Lancaster, Pa.



ARMSTRONG'S GLASS

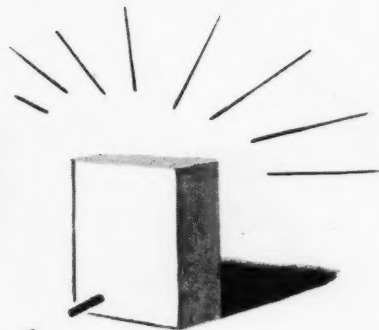


and **ARMSTRONG'S
CLOSURES**



**Bring your product i
at the p**

et into sharper focus e point-of-sale

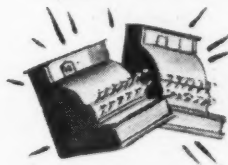
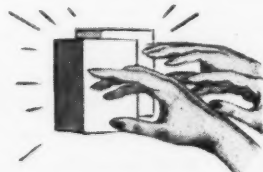


WITH COATED LITHWITE CARTONS

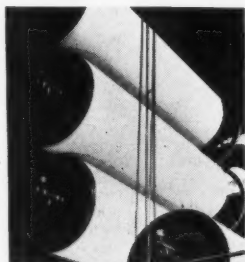


MORE EYES STOP! For *Coated* Lithwite cartons have a crispness—an eye catching brilliance. The finer printing surface of this revolutionary paperboard is the reason. It's hard. It's smooth. It's chalk-free. Forms a perfect base for plates and inks. Reproduces product illustrations with a sharpness and realism that arrests attention.

MORE HANDS REACH! Yes, *Coated* Lithwite gives a product greater package appeal. For this standout paperboard has a basic whiteness, a rich velvety look and feel that suggest high quality within the package.



MORE CASH REGISTERS RING! Shopping and impulse sales get an extra lift when *Coated* Lithwite cartons spotlight your brand, help it dominate on counter or shelf. It's more than a paperboard—it's an investment in good business!



FIVE STRAIGHT YEARS of proving and improving give *Coated* Lithwite its margin of quality leadership. Made on one machine in one continuous, straight-line, high-speed operation, it delivers a substantial surplus of value for every carton dollar. Right now, production is all sold up but we'll be glad to work with you on plans for converting to *Coated* Lithwite so that you'll be ready to add this outstanding paperboard to your postwar sales force promptly.

The GARDNER-RICHARDSON Co.

Manufacturers of Folding Cartons and Boxboard
MIDDLETOWN, OHIO

Sales Representatives in Principal Cities: Philadelphia • Cleveland • Chicago • St. Louis • New York • Boston • Pittsburgh • Detroit

JANUARY • 1945

29



BONDERIZED Steel Cans

STAND THE "DROP TEST"

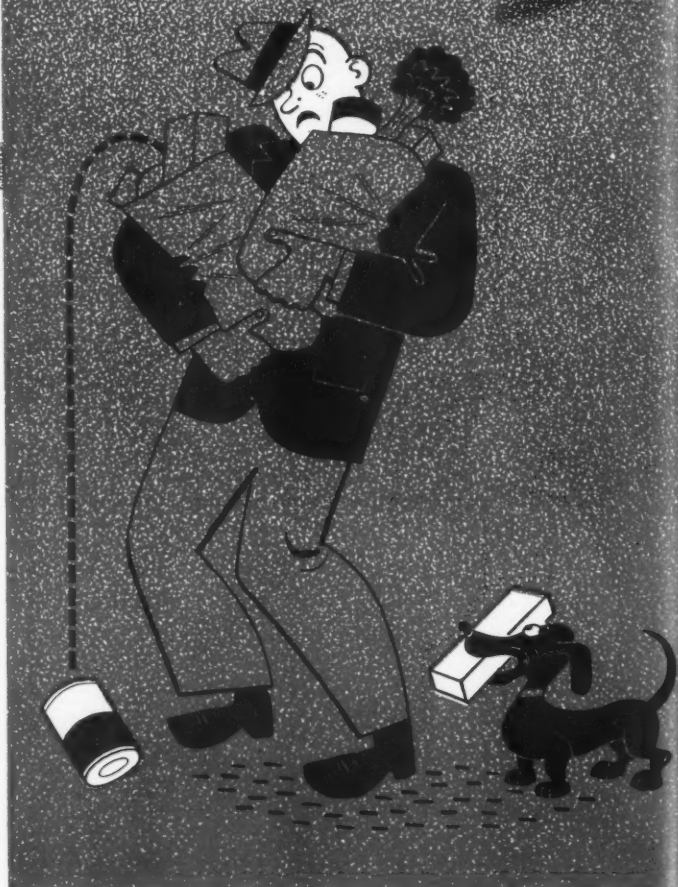
"Accidents are bound to happen," and in these days of "self-service," with arms overloaded, the "accident" rate is higher than ever.

When the customer drops a Bonderized Steel Can it is just a minor annoyance. There is only a slight dent in the can. The contents are still intact and the container will still retain the sealed-in quality until ready for use.

Easy to pack, handle, ship and display, millions of Bonderized Steel Cans are being used for many different products. Highly resistant to moisture, they stand ocean shipping and humid climates. The Bonderized surface is ideal for food lacquers, paper labeling or self lithographing.

PARKER RUST PROOF COMPANY

2187 E. Milwaukee Ave. Detroit 11, Michigan



BONDERIZING

HOLDS PAINT TO STEEL

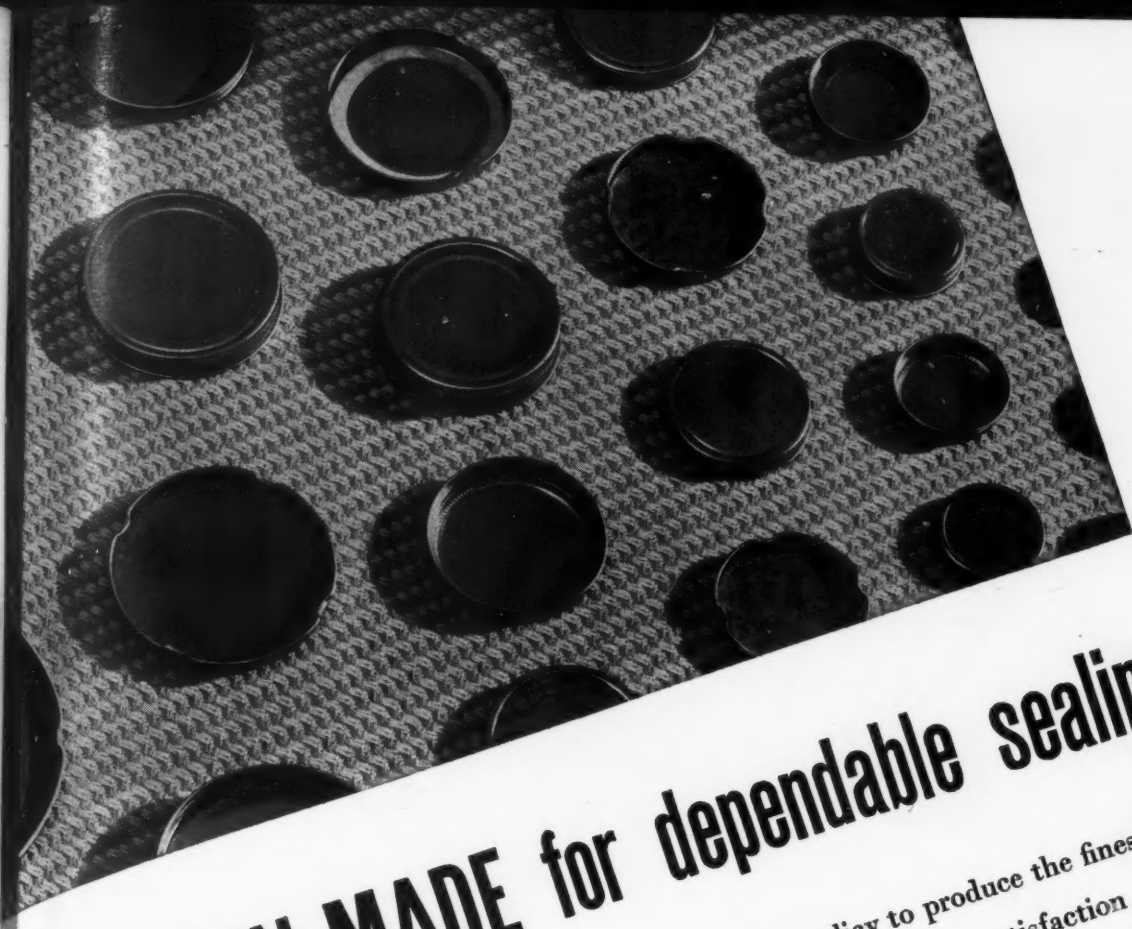
• **PARKERIZING**

INHIBITS RUST

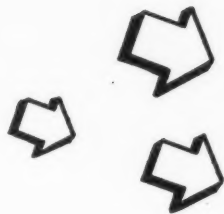
• **PARCO LUBRIZING**

RETARDS WEAR

PARKER PRODUCTS CONQUER RUST



PRECISION-MADE for dependable sealing



It has long been Crown's policy to produce the finest metal closures that can be made. The user satisfaction resulting from this sincere objective merits the careful consideration of all who buy closures for glass-packed products.

Experienced closure buyers know it pays to entrust your requirements to a qualified specialist in this line. Crown's vast fund of specialized knowledge, long experience and high manufacturing standards have made this company "sealing headquarters" for those who know and appreciate the meaning of quality in closures.

CROWN CORK & SEAL COMPANY
Closure Division • Baltimore 3, Md.

WORLD'S LARGEST MAKERS OF METAL CLOSURES

CROWN CLOSURES





American business men inspired this important "Made in the United States of America" change from the original O.W.I. emblem for export shipments. Now, hundreds of manufacturers and exporters tie their products to a U. S. Government campaign that is building good will for American made products among Ameri-

can and foreign consumers. It will pay you to adopt this NEW emblem and tell the world IT'S AMERICAN!

Available in any language and in sizes to suit your particular needs (from product to shipping container) to include your trade mark.

A Decal is the "Come in and BUY-Word" that flashes your sales message without a rest. Whether the need is for a perfume bottle label, point of sale advertising, or a sign for the side of a 20-ton truck, our creative staff is at your service, promptly. **INVESTIGATE NOW!**





PALM, FECHTELER & CO.

Creators of Quality Decalcomania

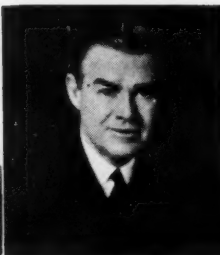
21 EAST VAN BUREN STREET, Chicago 5, Illinois • 220 WEST 42nd STREET, New York 18, N.Y.



H. H. Heminway
President



Merrit Heminway
Vice-President
In Charge of
Production



Robert E. Crotty
Vice-President
In Charge of Sales



Bartow L. Heminway
Treasurer



C. N. Booth
Secretary



J. P. Whitehead
Manager,
Printing Division

Announcement
by the Officers
of a new corporate name



HEMINWAY CORPORATION

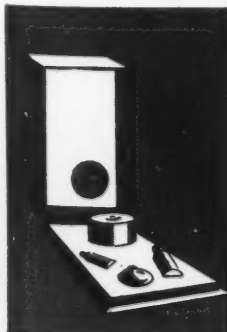
(formerly known as The Waterbury Paper Box Company)

Sales Office—30 Rockefeller Plaza

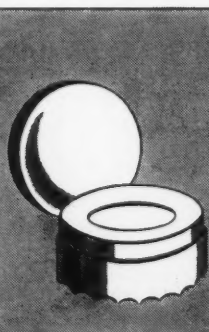
New York, N. Y.

Factory and Main Office—Waterbury, Connecticut

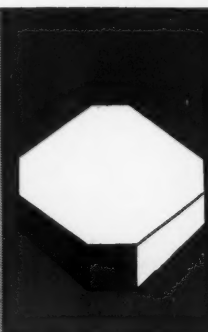
Set-Up
Boxes



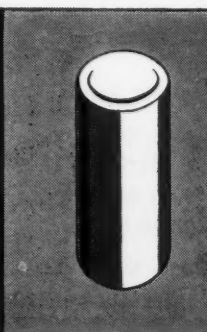
Round
Boxes



Drawn
Products



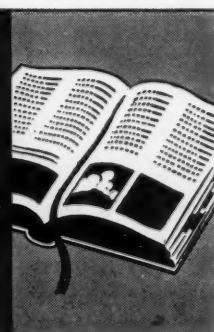
Canisters



Novelties



Printing



Today • Protection, Convenience for Vital War Aids

Tomorrow • Protection, Convenience and Appeal for your
Peace-time packages... creams, pastes, powders

WITH WIRZ COLLAPSIBLE METAL TUBES •

The protection and convenience characteristics of WIRZ Collapsible Metal Tubes make them the ideal container for vital ointments, lubricants and special war aids for our Armed Forces... over ninety percent of our total tube production is on these war "musts." Civilian deliveries give way for these important war items... at least six months for unrated business.

When Peace-time products have the right-of-way again, you can add good appearance to protection and convenience... and WIRZ Tubes will protect your product, your brand name and your market.

WIRZ Tubes are practical in different sizes for a variety of products... with suitable wax or lacquer linings to combat corrosion and seepage. The WIRZ Mono-Pak,* one-application tube, makes an excellent merchandising unit. Can be hermetically sealed, requires no capping or labeling. Put WIRZ Tubes in your post-war packaging plans.

*Registered Trade Mark

Give an extra push now — buy more War Bonds

New York 17, N.Y. Chicago 4, Ill. Memphis 2, Tenn. Havana, Cuba
30 E. 42nd St. 80 E. Jackson Blvd. Wurzburg Bros. Roberto Ortiz Planos

★ A. G. SPILKER { Los Angeles 14, Calif., 1709 W. 8th Street. ★
(EXposition 0178) — Also Danville, Calif.

COLLAPSIBLE METAL TUBES • LACQUER LININGS • WAX LININGS • WESTITE CLOSURES
HOUSEHOLD CAN SPOUTS • METAL SPRINKLER TOPS • COMPRESSION MOLDING

A·H·WIRZ, INC.

Established 1836

CHESTER, PA.

EXPORT DIVISION —

751 DREXEL BUILDING, PHILADELPHIA 6, PA.

Can you use *Laminating Adhesives* with these characteristics?

Bond Strength:

Darex Laminating Adhesives give high bond strengths over a wide temperature range. Even at heat sealing temperatures they resist delamination.

Stability:

Darex Laminating Adhesives are stable at operating temperatures of 230°F. They are easy to use and can be kept continuously molten since they do not stratify or throw out constituents.

Heat Sealing:

Darex Laminating Adhesives do not flow or delaminate under heat sealing conditions.

Moisture-Vapor Transmission:

Darex Laminating Adhesives have been compounded to increase the protection against moisture-vapor transmission—a major consideration in laminated sheets.

Creasing:

Because of their formulation, Darex Laminating Adhesives give chamois-like characteristics to laminated sheets. This greater flexibility lends itself to folding carton manufacture and bag forming where scoring and creasing cannot be avoided.

Some Suggested Uses:

For doughnut cartons where hot packs are required. For sheet materials used in the protection of moisture-sensitive products. For heat-sealable stocks where protection against delamination is desired. For bags and cartons where better resistance to creasing, scoring, and bending is desired. For foil lamination where high bond strength, as well as the ability to cover up small pin holes, is required.

Darex Laminating Adhesives are designed to bond non-protective or semi-protective sheets to themselves or other bases to form protective packaging materials.

We do not claim that Darex Laminating Adhesives will solve all laminating problems, but our experience with them indicates that they offer to the industry a series of new materials whose properties package users have long sought. Our technical staff welcomes the opportunity to discuss these products with you.

Manufacturers of Darex Thermoplastic Coating Materials and Adhesives for protective packaging.

Dewey and Almy Chemical Co.
Cambridge, Massachusetts

**DAREX
LAMINATING
ADHESIVES**



Resolve

**TO BUILD YOUR POST-WAR
BUSINESS WITH SEFTON'S
"PROFIT PACKAGING"**

Start the year out right . . . resolve to step up your post-war sales with Sefton's "Profit Packaging!" Whether you're selling ice cream or piston rings, Sefton's package with the "pull-string" opening offers 3 distinct advantages for your product. It (1) factory-seals your product, is tamper-proof! (2) opens with one pull of the string (3) can be closed again, if necessary. Include it in your post-war plans!



FIBRE CAN COMPANY
ST. LOUIS NEW ORLEANS

DISTRICT OFFICES: • Los Angeles • San Francisco • Denver • Tampa • Chicago • Des Moines • New Orleans • Boston • Detroit • Kansas City • St. Paul
Omaha • New York • Cincinnati • Cleveland • Oklahoma City • Pittsburgh • Memphis • Nashville • Dallas • Houston • Salt Lake City • Seattle

30TH

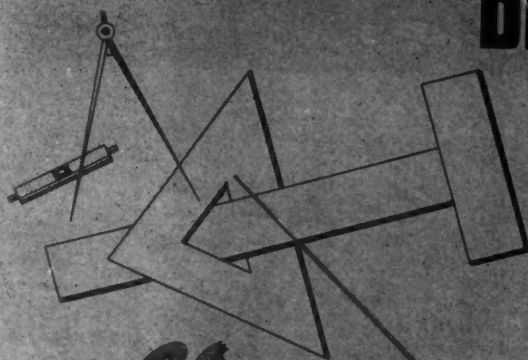
ANNIVERSARY

Designing and Producing

FOLDING PAPER BOXES

and

DISPLAY CONTAINERS



30 years' experience has taught us how to produce outstanding folding cartons and display containers.

*Designed for sales promotion
and product protection*

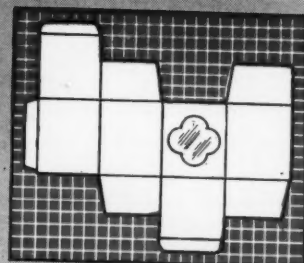
Our Art and Sample Departments are organized to suggest the best in creative ideas based on a thorough analysis of your packaging problems.

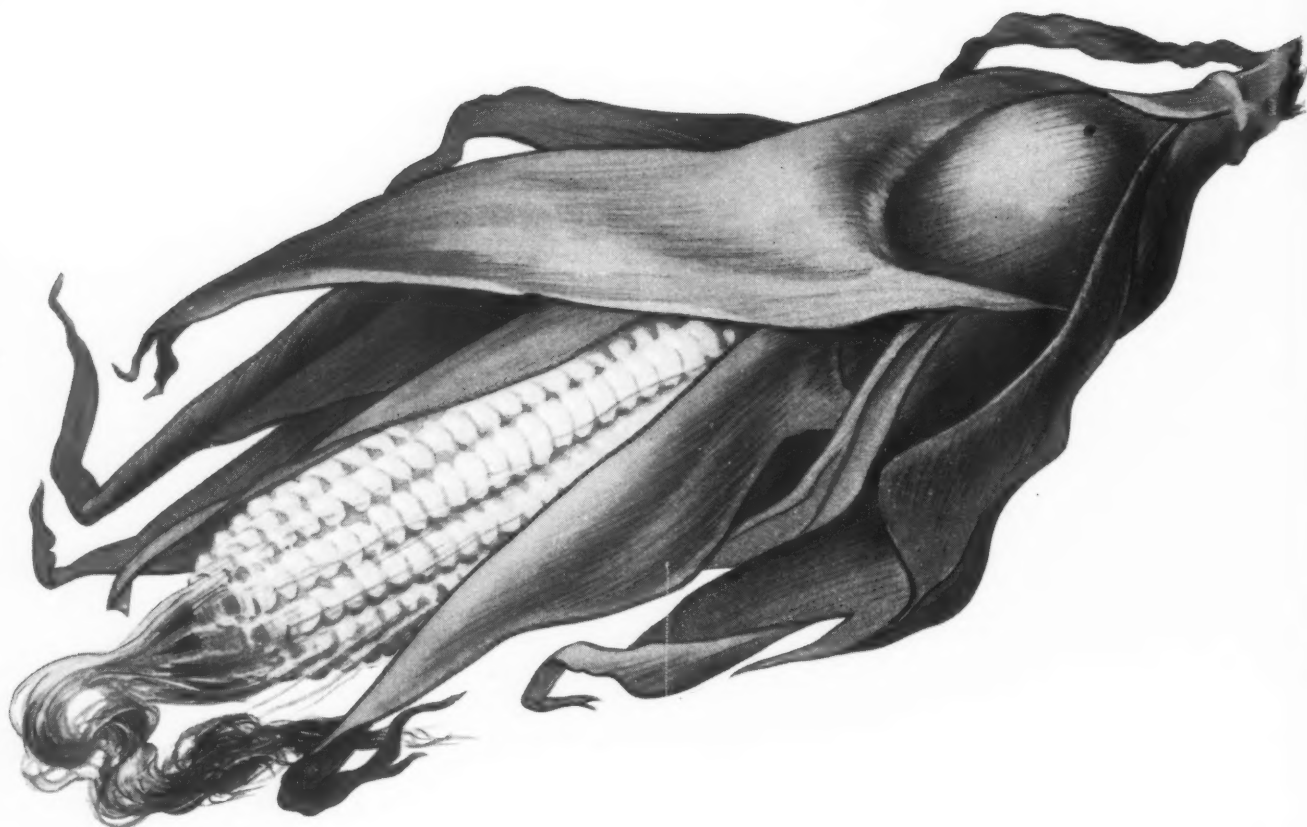
We suggest you consult us now for your present and postwar requirements.

ACME FOLDING BOX CO., INC.

141 E. 25th STREET, NEW YORK 10, N. Y.

TEL. MUrray Hill 4-7520





PACKAGING by Nature

Wise Old Mother Nature taught man the first lessons in protective packaging. Encased in their shrouding armor of skin, husk, pod, rind or shell, all growing edibles fend off the enemies of fruition from *without* while conserving *within* their precious nourishment. Because today's pattern of food consumption demands many forms of processing, distribution and storage, the essential factor of preservation recurs and man-made protective

packaging becomes all important. Now-a-days, many foods in many forms possess finer freshness, improved taste, enhanced appearance and unimpaired nutritional values because of being safeguarded in Rhinelander Protective Papers. Unrelenting research and development of improved techniques added to the skills achieved over nearly a half-century are the bedrock upon which Rhinelander's reputation was gained and will ever be maintained.



Genuine Greaseproof
Coffee Bag Papers
Confectionery Papers

Cereal Wrapping Papers
Laminated Greaseproof Papers
Lard and Shortening Liners

Bakery Product Wraps
Cracker Box Liners
Greaseproof Innerwraps

Wax Laminated Glassine
Opaque Label & Bag Glassine
Packing Industry Wrappings

RHINELANDER PAPER COMPANY • MILLS AT RHINELANDER, WISCONSIN, U. S. A.

KIDDER POINTERS



No. 5. Observations of trends and indications in packaging . . . noted by the manufacturers of Kidder "3 Point" Presses, Kidder Press Company, Inc., Dover, N. H.

Kidder announces a new improved series of Aniliners in a colorful four-page bulletin which is yours for the asking. The new Aniliners embody several unique features and refinements developed to speed production and assure top quality in the printing of decorative papers, cellophane, glassine etc. They should prove extremely helpful in meeting postwar problems in packaging. The size of the largest Aniliner has been increased to 65".

Eighty-five percent of all buying starts with the eyes . . . visibility is of primary importance in the package of the future.

Mrs. Housewife wants to know . . . what shape? how big? what color? how fresh? what quality? how to use? why to buy? says Dobeckmun Company of Cleveland in a tell-all packaging advertisement in MODERN PACKAGING for October.

Packaging goes hand in hand with interior store equipment in plans of foresighted merchandisers towards decentralized stores . . . following the Bureau of Census figures showing the shift of consumer buying away from metropolitan shopping centres, and the shift to motor transportation. Chains and group managements operating on decentralization principles call for well-planned store fixtures for display of packaged merchandise with allotted sections for each brand . . . the package design to be such that when group massed, it forms part of an over-all distinguishing display pattern of all the packages of that brand as a whole . . . featuring end labels.

Wartime packages represent eight major changes: from all-metal to all-paper; all-metal to paper with metal ends and closures; all-metal to glass with metal closures; all-metal to glass with paper, plastic or wood closures; from packages with metal ends and closures to all-paper; all-metal foil-wrapped to all-paper; from nailed, all-wooden packages to all-paper; cellophane to all-paper . . . Dehydrated and bulk frozen foods gained wartime momentum . . . If someone develops a rigid fibre container that can be used without a separate liner, that freezes quickly, that will withstand more handling than tin cans — and at the right cost — he'll be well repaid by frozen food industry . . . highlights R. G. MacDonald, Secretary, Technical Association of Paper and Pulp Industry.

Textiles are likely to encounter a competitor of growing vigor as a result of many new war developments in the paper industry . . . vying directly with cotton as paper towels, napkins, doilies, tablecloths . . . and as commodity shipping packages. Also developing in the plastics field.

Of great interest to the fields of towelling, sensitized paper, frozen food pack bag and wrapping papers and cloth substitutes are new synthetic resins increasing paper wet strength as much as ten times and giving promise of use of less expensive and more readily available pulps by the paper industry . . . comments F. G. Felske of Resinous Products & Chemical Company.

Egg powder will be packaged postwar in four blocks of powder — whites, yolks and whole eggs — compressed into cellophane "shells".

Tremendous postwar activity in the packaging field is seen through ADVERTISING AGE'S survey. Among manufacturers responding, 70% will package new products, 60% plan new packages for old products. Both manufacturing executives and advertising agency executives exhibit almost universal interest.

Whole milk can be frozen in a form suitable for distribution like other packaged frozen foods. The complete official story is available from F. J. Doan and J. G. Leader, Pennsylvania Agricultural Experiment Station, State College.

KIDDER PRESS COMPANY, INC., Printing Machinery, Dover, N. H.

Wrapper Achievement OF THE MONTH



Watch for another
Wrapper Achievement
of the Month.

Impulse-buying is stimulated by the rich clear red, yellow and blue printing on white waxed paper which is the protective wrapping for Jersey Gold Bread, manufactured by Jersey Bread Company of Toledo, Ohio. A small block of copy gives the nutrition story in vitamin values of the product. For this easy-identification, self-service wrapping printed on our "3 Point" Presses, Kidder salutes

THE DETROIT WAX PAPER COMPANY

River Rouge 18, Michigan

PITTSBURGH WAX PAPER COMPANY

Pittsburgh 22, Pa.

SAFETEE GLASSITE PAPER COMPANY

Philadelphia 24, Pa.

CLEVELAND WAX PAPER COMPANY

Cleveland 11, Ohio

WAXED PAPERS, INCORPORATED

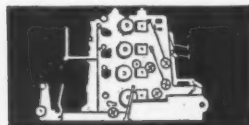
Long Island City 1, New York

KIDDER IS READY TO ANSWER YOUR QUESTIONS

While Kidder manufacturing facilities have long been at war, Kidder development engineers have recently been released and are making interesting and significant improvements in machinery, promising new opportunities for better and more profitable multi-color wrapper printing. Converters who are alert to peacetime packaging demands are consulting with us now.

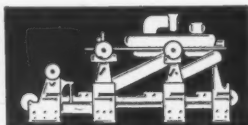
Letter presses bearing the Kidder "3 Point" trademark are operating today in many of the country's outstanding wrapper-printing plants. (Kidder presses print, for example, more than 95% of all waxed bread wrappers.) An improved aniline-type press is being announced. Kidder is also introducing a new line of "Unitype" gravure presses, so-called because they can be purchased a unit at a time, expanding your capacity as needs require. A line of improved and refined Slitters and Rewinders is also being developed.

Manufacturing restrictions are gradually being lifted, and we are approaching the time when we can give specific answers to your printing machinery problems. A talk with a Kidder engineer involves no obligation.



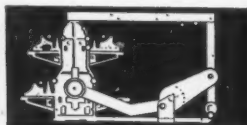
MULTI-COLOR LETTER PRESSES

for waxed paper, box wrappers, etc., rewound or sheet-delivered — up to 72".



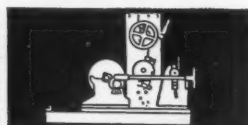
MULTI-COLOR GRAVURE PRESSES

for cellophane, foil, pliofilm, etc. — rewound or sheet-delivered — up to 36".



MULTI-COLOR ANILINE PRESSES

for decorative papers, cellophane, glassine, etc. — up to 65".



SLITTERS & REWINDERS

for paper mill finishing rooms and small-roll, high-speed slitting — up to 72".



KIDDER PRESS COMPANY, INC.,
Printing Machinery, DOVER, N. H.

KIDDER

Manufacturer of "3-Point"
Presses — so-called because
they fulfill the three major re-
quirements for perfect printing.

CONTROL OVER THE PAPER



PROPER DISTRIBUTION OF INK



ACCURACY OF THE IMPRESSION



CEL-O-SEAL Bands extend shelf life of marshmallow creme

Marshmallow creme is a temperamental prima donna of the food family. Its fluffy goodness depends upon the maintenance of an exact balance of moisture and air. If this balance is upset, the ingredients separate, rendering the product unfit for sale.

A Du Pont CEL-O-SEAL* cellulose band seals the simple waxed cardboard lid now used on delicious Serv-Agen Marshmallow

Creme. The manufacturer reports that since CEL-O-SEAL bands were adopted, shelf life has increased, and he has not had a single spoilage complaint. A test package sealed with a CEL-O-SEAL band two years ago is still in good condition . . . although the shelf life of marshmallow creme normally has been a matter of but a few months.

Consider the advantages of CEL-O-SEAL bands for your product. They hold closures tightly in place, guarding against leakage, evaporation, contamination and substitution. Available in a wide range of distinctive colors, CEL-O-SEAL bands can be impregnated with your monogram or sales message to serve as attractive second labels. Write today for full information on this valuable merchandising aid.

*Trade Mark



CEL-O-SEAL bands and WIND-O-BAND seals are sold by:

E. I. du Pont de Nemours & Co. (Inc.), "Cel-O-Seal" Section,
Empire State Bldg., New York City 1

Armstrong Cork Company, Glass & Closure Division, Lancaster, Pa.

I. F. Schnier Company, 683 Bryant Street, San Francisco 7, Calif.

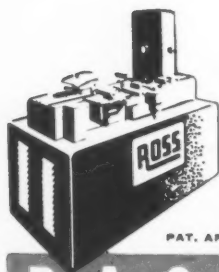


BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY



The old horse won't stand the new load

Plan now to replace fatigued and obsolescent packaging machinery . . . plan with ROSS. ROSS packaging machinery, revolutionized through long years experience, will successfully meet your coming demands. With speedy, versatile adjustability through precision dial controls—no oiling, all moving parts self-oiled—ROSS automatic and semi-automatic machines have Master Speedrangers giving speeds from 40 to 120 a minute or greater. Standardization of high precision parts, made to close tolerances is an exclusive feature of every ROSS machine. Look to ROSS for assistance in your packaging problems. Write for complete information.



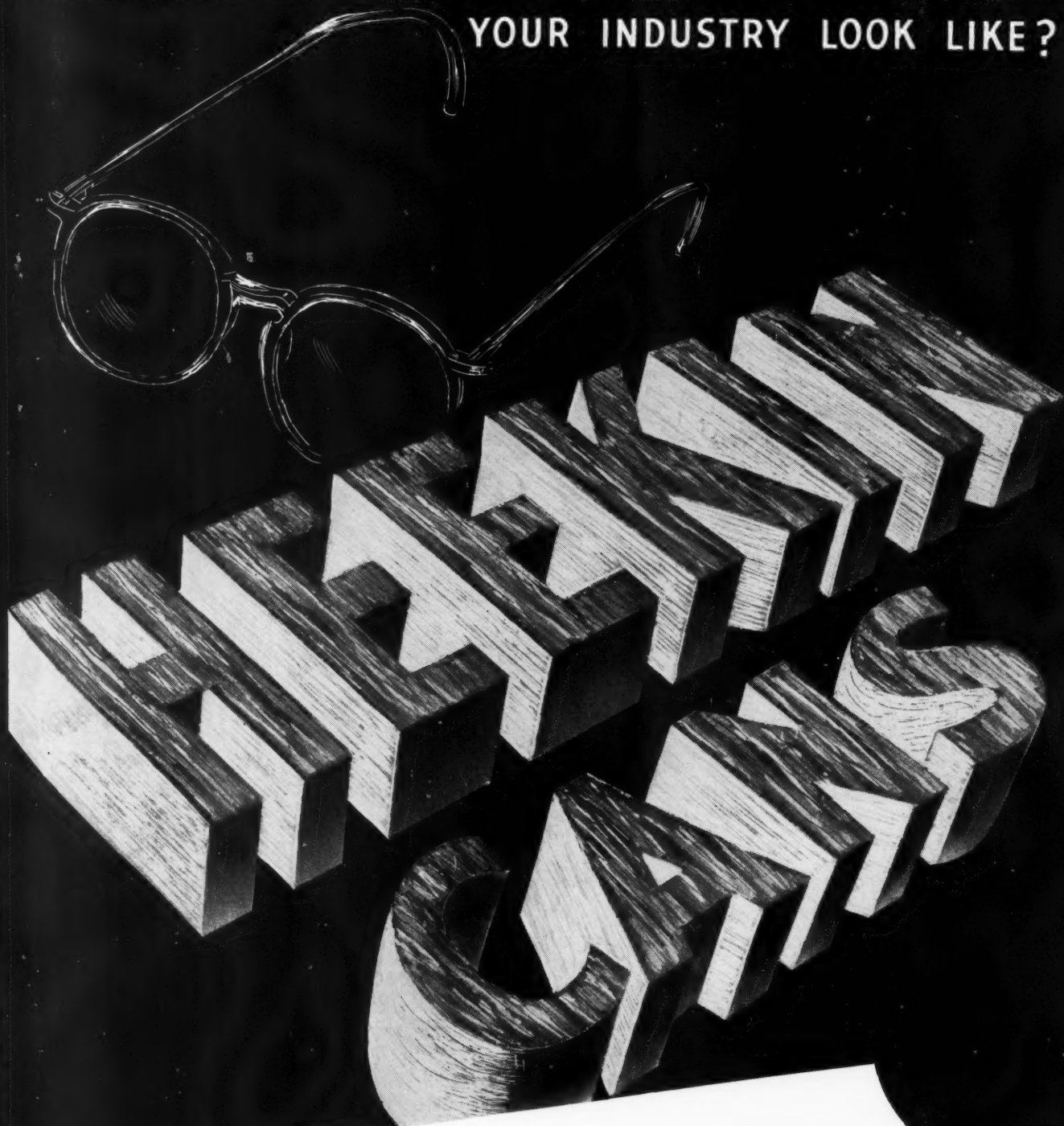
PAT. APPLIED FOR

A. H. ROSS Co.

LUDLOW • KENTUCKY

PACKAGING MACHINERY

WHAT WILL THE POST WAR METAL PACKAGE IN
YOUR INDUSTRY LOOK LIKE?



ANY SHAPE ANY SIZE
ANY COLOR ANY QUANTITY

THE HEEKIN CAN CO. CINCINNATI 2, OHIO



Paisley
SCIENTIFIC
ADHESIVE SERVICE

**KEEPS YOUR
ADHESIVE
OPERATIONS
UNDER CONTROL**

★ A specimen of every batch of Adhesives produced in modern Paisley Plants is withdrawn for laboratory tests. Identified by date and batch number, they enable us to maintain constant control of your adhesive formula. Periodic testing of these jars is standard practice with Paisley's Adhesive Chemical Engineers. Whether the batch sheet called for a gallon or a carload, the sample is time-checked religiously for storage life, retention of viscosity and body, machinability, emulsion stability, uniformity of color and cohesive spread . . . as well as tested for adhesive qualities on the actual materials to be bonded. *Definite, high standards of quality must constantly be met!* You, too, can bring scientific control to your adhesive operations with all the benefits of perfect performance, low maintenance costs and freedom from suspended operations. If it's an adhesive problem—"Put it up to Paisley!" ★



SEND FOR

this Adhesive Problem Data Sheet. It's your guide to getting the **ONE** best, most efficient adhesive for the specific operation you describe. Trial shipment will be sent **ON APPROVAL** if desired. If you are not entirely satisfied, we'll gladly cancel the invoice. This skilled laboratory service does not obligate you. It's the **SURE...** the modern way to buy adhesives.

PAISLEY PRODUCTS INCORPORATED

Manufacturers of Glues, Pastes, Resin Adhesives, Cements, and Related Chemical Products

1770 CANALPORT AVE., CHICAGO 16, ILL. ★ 630 W. 51st STREET, NEW YORK 19, N. Y.



THE STAFF OF LIFE THAT LOST ITS PEP

Buckwheat flour is a pretty fussy product to package . . . and takes an awful beating from bugs.

That, most likely, is not news to you. But maybe it is news to you that there is a *functional* packaging paper available today that goes a long way toward minimizing insect infestation and mold in bagged flour . . . and protects all manner of pre-packaged or processed meats and foods from foreign odors and tastes while at the same time sealing in their inherent flavor and goodness.

This new *functional* packaging paper is produced in two types: plastic coated paper; and, aluminum coated paper.

Let's look at their properties. See why they will protect bagged flour; why they

will protect many packaged food products from vitamin and flavor loss

First off, Keller-Dorian *functional* packaging papers are either moisture-vapor proof (M.V.T. of 1.3 grams) and grease proof, or, moisture-vapor, grease and light proof.

The moisture-vapor-air stability retards development of conditions favorable to bacteria growth; the exclusion of light removes a prime cause of vitamin loss.

These papers may be heat-sealed, scored, cut and folded to fabricate any size, shape or style package. They may be printed or labeled.

The coatings are permanent, flexible, won't peel or crack, become brittle or

tacky within a temperature range of 190° above to 50° below zero (F).

Interested?

Then find out if these award-winning "war babies" have a peacetime future curing your packaging headaches. Let our unique *functional* packaging experience, techniques and thinking go to work for you. Write today for free testing samples and data sheets.

KELLER-DORIAN
CORPORATION
Empire State Building
New York 1, N.Y.

FUNCTIONAL PACKAGING PAPERS *for Protecting Perishable Products*



THE MANHATTAN LION...ADHESIVE'S STAR PERFORMER

There are many cases where an industry's adhesive requirements "run forever smoothly". In these instances, having only to maintain **QUALITY**, we can immediately prance through production. But—along with the good there are also those many assignments which pose *new* problems—requiring **RESEARCH**. It is here that the old know-how symbolized by Manhattan's standard bearer renders star performance! Manhattan's laboratory is constantly searching out better ways for making better glues. What we have learned from solving war's problems is already being incorporated into Manhattan adhesive formulae of tomorrow. We therefor invite your inquiries, certain that through our staff's experienced **COUNSEL**, we can render your planning an invaluable **SERVICE**.

MANHATTAN PASTE & GLUE CO., INC.

Chicago - Philadelphia
Rochester - Boston
Columbus, O.

Lion Brand Adhesives

425 GREENPOINT AVENUE, BROOKLYN, N.Y.



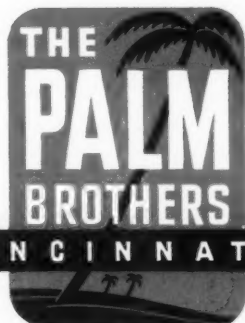
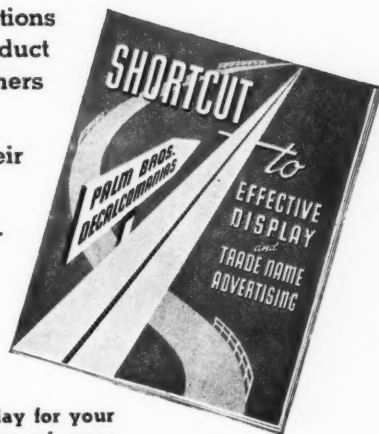
CAMOUFLAGE IS GOOD...

but not for your nameplates

Call attention to your nameplates (trademarks, company name, instructions for product usage) — get that extra sales lift that goes with excellent product identification — all through the eye-catching appearance of Palm Brothers Slide-Off Decals.

You'll marvel at their simplicity of application — you'll be amazed by their low cost.

There's a decorative Palm Brothers Decal for almost every known surface — with proved properties to give you the utmost in satisfaction — even under the most unreasonable of performance requirements.



Write today for your
free copy of new
Bulletin No. 916.

Decalcomania Co.

C I N C I N N A T I . . 1 2 . . . O H I O . . U . S . A .

10 S. THE NEW YORK TIME

BUSINESS OPPORTUNITIES

Manufacturers of superior products and specialties for both War and Post-War use who are seeking a well rated metropolitan New York distributor with the entre to large industrial concerns, are invited to consider this 21 year old organization with its trained staff, 60,000 square feet of warehouse space, and all the facilities necessary for aggressive sales representation and service. For further information write

CRITERION PAPER & TWINE CO.
345 West 36th Street, New York 18, N. Y.

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1,000,000 annually
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affiliated companies
in Radio Tele-
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CENTRAL AND
WE PAY CASH
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tion into business where
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venture to sell outright or
expansion. **EXTRA TIMES.**
ATTENTION
as specialists producing
1 Budget Group lists
newspapers (12 weekly
circulation 1,000,000)

POST-WAR. Desire contact investor with
\$25,000. active interest. It is proposed
that corporation be formed for the manu-
facture and sale of maritornous standard-
ized building specialty made of wood and
metal stampings. 2 patents granted. Three
initial stampings. 130 to 150. Used in one
price ranges. 130 to 150. Used in one
family dwellings, private garages. Sold to
number dealers, or direct to builders, home
owners. National in scope. Location. city.
war future. Substantial. **1223 Times.**
but not essential. **1223 Times.**

ADVERTISING AGENCY success-
ful, recognized, established 18 years. Full part-
nership in congenial creative or con-
sideration. man qualified to help expand present
industrial accounts for post war. Plant
Art and Photographic equipment. This is an
of work on hand and speed. This is an
unusual opportunity. confidential. **1223 Times.**

PRODUCTION expert. individual or cor-
poration, with real "know-how," to as-
sume charge of and expand manufacturing
facilities in our fast growing, successful
business. Can use additional capital to
expand. Government loan and for plant
expansion. about \$50,000. Eastern loca-
tion. Highest type principals only. Full
references exchanged. **1271 Times.**

WILL ASSIGN \$13,500
LIFE INSURANCE RENEWALS
due us from a New York life insurance
company as security for a loan of \$8,000,
and authorizes the insurance company to
pay renewals directly to you each month.
liberal interest. **1418 Times.**

LIVE WIRE broker-builder with complete
organization and equipment requires
\$10,000-125,000 additional capital to buy
low-priced acreage for post-war develop-
ment. Unlimited possibilities. Thorough in-
vestigation invited. Active or inactive
partnership. **1251 Times.**
IDEALLY located rural camp, 100
acres, now operating successfully. Con-
siderable building. **1251 Times.**

BUSINESS
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PROTECTING A LIFE PROTECTOR... wartime duty for Mr. Cellophane

THESE GAS MASKS—humanity's defense against a deadly weapon—are protected by Sylvania cellophane bags. This cellophane seals out all dust, air, water, and moisture-vapor. What's more, it withstands all the abuse of shipping to the far corners of the earth. Sylvania cellophane *must not fail*—for a damaged gas mask may cost a life.

It takes fabulous quantities of Sylvania cellophane to do this and other vital war jobs. However, the far-reaching discoveries Sylvania is making today are your assurance of more uses for cellophane—and better cellophane—in the postwar tomorrow.



SYLVANIA CELLOPHANE

Made only by **SYLVANIA INDUSTRIAL Corporation**

Manufacturers of cellophane and other cellulose products since 1929

General Sales Office: 122 E. 42nd St., New York 17, N. Y. ★ Plant and Principal Office: Fredericksburg, Va.



WAR-TIME adhesive DEVELOPMENTS

LOOK under the tarpaulin on any supply ship edging up to a battle zone — and you'll see how successfully adhesives have kept progress with entirely new war-time principles of packaging, converting and assembling.

Straight line production methods, so vital to increased output and decreased cost, have been paced with fast acting adhesives . . . Problems of varied stock and operating conditions, so necessary to the ever-changing requirements of global warfare, have been readily solved by the increased versatility of more foolproof adhesives . . . Simplified production methods and machine designs, so essential in the elimination of bottlenecks, have been made possible with more efficient adhesives.

In many cases, tempering time for glue has been reduced from hours to seconds; greater utility has been made possible for packages; savings in time, manpower and material costs have been effected — accomplishments of especial significance to the business man contemplating the highly competitive postwar world.

So why not have your Postwar Planning Committee review your prewar production bottlenecks and sales resistances. There's an excellent chance that all adhesives barriers have been lifted by war-time developments.



Official U. S. Coast Guard Photo

Adhesives Manufacturers Association of America

441 Lexington Avenue, New York 17, N. Y.

Alka-Seltzer

MAINTAINING TRADE NAME RECOGNITION



ALKA-SELTZER, a trade name of world-wide recognition, is flashed to shoppers 24 hours a day, every day in the year . . . in homes, on the highways and at the vital points of purchase. For years, we have created and produced advertising display material to maintain shopper recognition and acceptance of this renowned product . . . window displays, counter displays, floor displays, back bar displays, posters. We can help you, too, to plan for and meet imminent postwar competition . . . successfully.

A current life-size floor display that mingles with waiting shoppers and sells ALKA-SELTZER.

FORBES



LITHOGRAPH CO.

P. O. BOX 513 • BOSTON 2

NEW YORK

CHICAGO

CLEVELAND

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**THESE
ARE LABELRITE
FEATURES:**

FULL-SURFACE
ADHESION

•
NO LOOSE EDGES

•
PERFECT REGISTER

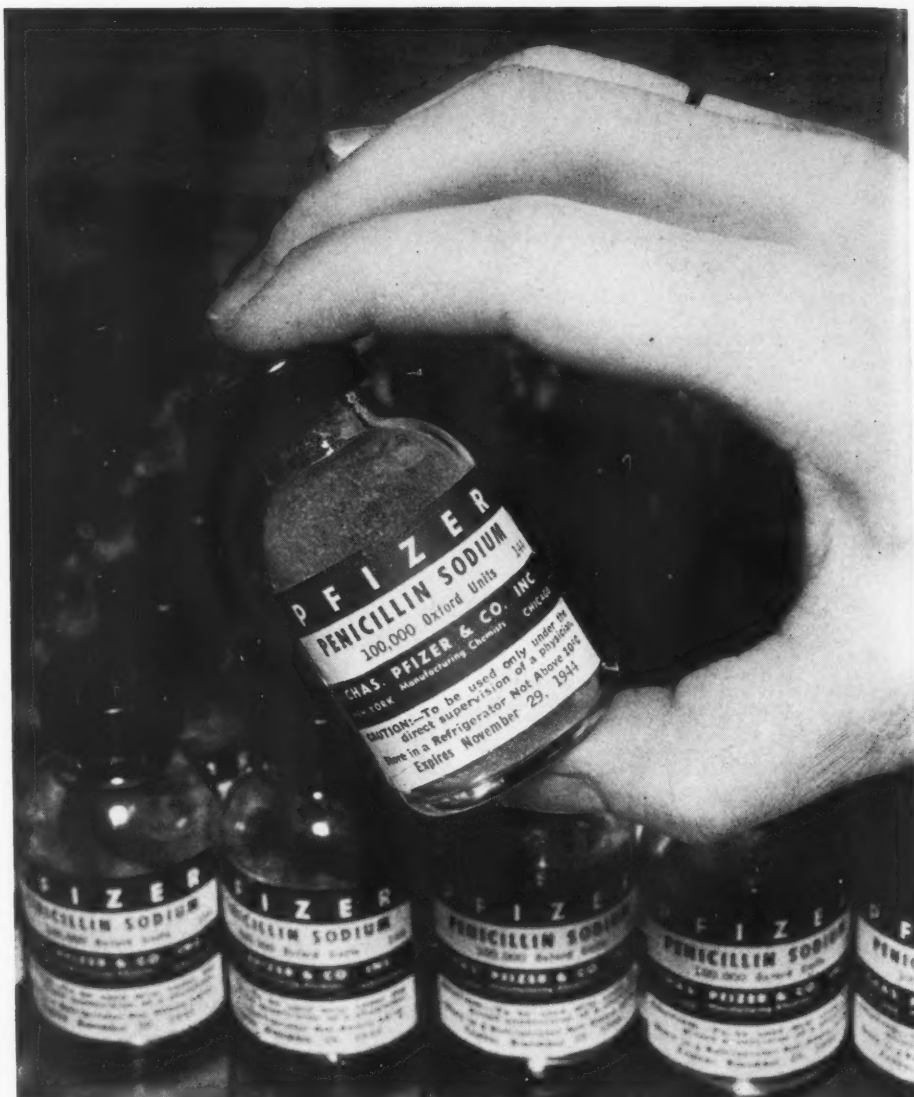
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POSITIVE
GLUE CONTROL

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NO EXCESS GLUE
TO WIPE OFF

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CHANGE-PARTS
FOR SIZE-RANGE
ARE PETTY-CASH

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60 TO 120 PER
MINUTE

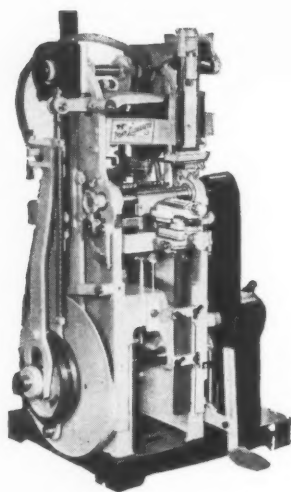
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EXCLUSIVE
SELF-CLEANING
DEVICE



Stick-tight — CLEAN — Labeling
is a **LABELRITE** feature

When you want to guard against torn—or unsightly labels; provide against loss of vital printed matter; or to maintain your precious prestige,—you'll want your labeling done on a LABELRITE. Cleaner, faster and better labeling is being done by hundreds of manufacturers on the LABELRITE,—and they are lowering their costs by proven, built-in LABELRITE features. Send us samples of your product for estimate without obligation!

Get FACTS; and You'll Get Labelrites!



NEW JERSEY MACHINE
corporation

325 W. HURON ST.
CHICAGO, 10, ILL.

1701 CAREW TOWER
CINCINNATI, OHIO

1600 Willow Ave., HOBOKEN, N. J.



when they **SEE** it you **SELL** it

How soon must products return to the job of *displaying* their sales appeal to the appraising eye of discriminating buyers? Soon enough, certainly, to think now about smart packaging ideas that *sell* and *protect* at the same time.

That's exactly the job for Ethocel Sheeting. This Dow plastic—made of ethylcellulose—gives you a combination of qualities not found in any other plastic sheeting. Brilliant transparency *displays* your product; durability and extra-long shelf life *protect* it.

Look over the many uses and advantages of Ethocel Sheeting, then get the full story at any Dow sales office.

THE DOW CHEMICAL COMPANY • MIDLAND, MICHIGAN

New York • Boston • Philadelphia • Washington • Cleveland • Detroit • Chicago • St. Louis • Houston • San Francisco • Los Angeles • Seattle

PRESENT AND POTENTIAL USES: Boxes and containers, displays, advertising novelties, envelopes, greeting cards, labels, lamp shades, loose-leaf devices, decals, records, electrical insulating tape, ice trays, lighting fixture covers, etc.

ADVANTAGES — — — **Tough—flexible—transparent.** Withstands wide temperature variations, severe conditions. Easily fabricated by drawing, folding. Can be beaded, printed and joined by adhesives. Transmits moisture slowly.

Ethocel Sheeting



PLASTICS

FOR BETTER PACKAGING:

SARAN FILM • ETHOCEL SHEETING • STRIPCOAT • STYRON

LOOKING AHEAD toward Post-war Days



Today, our facilities, like those of so many others, are filled to capacity turning out material that is helping bring victory and peace closer. For that reason we cannot always give the service which has built the "S & S" reputation over the past 40 years.

We are doing our best, though, to help our many friends and customers all we can. But, if you have to wait for repair parts or even new machines, we hope you will understand.

In the meanwhile, our engineers and designers are working steadily so the S & S machines you will want after the war will serve you better.

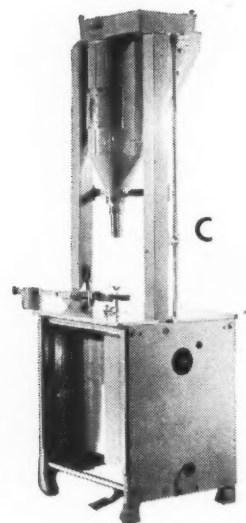
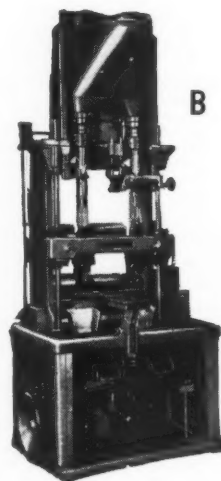
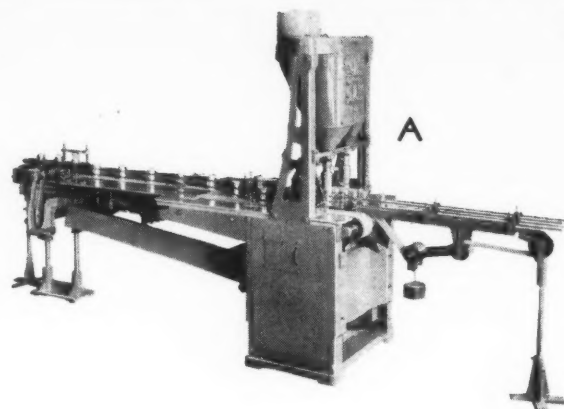
- A. S & S Two Station Filling Machine.
- B. S & S Transwrap Machine. Forms—Fills—Seals. Uses Cellophane or other heat sealing films.
- C. S & S Universal Filler. For powders, pastes, or granular material.

STOKES & SMITH CO

Frankford, Philadelphia 24, U. S. A.

FILLING-PACKAGING-WRAPPING MACHINES

Speeds to suit your needs—15-30-60-120 per minute



"Life-Saving" PACKAGING HELPS SAVE LIVES *"Over There"*



*P*enicillin is a miracle of mercy in a hate-saturated world. Literally hundreds of thousands of critically wounded, who must otherwise have certainly died, are usefully alive today—thanks to life-giving penicillin's instant availability, prompt administration.

Kennedy is proud to be making many of the water-proof, dust-proof box liners that are playing such an immensely important role in this drama of mercy. To these Kennedy liners falls the urgent responsibility of protecting many life-saving drugs—penicillin, sulpha, atabrine and others—against all elements, right up to the very moment they are issued for battlefield service.

As with practically all of Kennedy's special wartime packaging assignments, the design and construction of these water- and dust-proof box liners called for the unusual in engineering ingenuity and technical skill. Here is another splendid example of Kennedy's demonstrated ability to develop and fabricate packages for your every conceivable requirement—however complex or difficult.

Kennedy packaging experts are located in the major cities listed below. Entrust your packaging problems to them with complete confidence.



CAR LINER & BAG COMPANY, INC.
PACKAGING PIONEERS ★ SHELBYVILLE, IND.

Canadian Plant: Woodstock, Ontario • Sales Offices: New York, Chicago, Cleveland, Detroit, Kansas City, Los Angeles, Atlanta
FABRICATORS IN PLIOFILM • SARAN • KOROSEAL • METAL FOIL • CELLOPHANE • KRAFT PAPER • AND OTHER MATERIALS

Approximately
700,000,000 lbs.
of
synthetic resins
became
Plastics
in 1944!

Thus again does the plastics industry enlarge its scope—and thus again does a January issue of *Modern Plastics* report still another annual expansion of America's fastest growing industry.

It is *Modern Plastics'* annual privilege to gather the statistics and review the growth of plastics. The magazine has been doing this for nearly twenty years, mirroring one of the greatest pictures of industry expansion in American history.

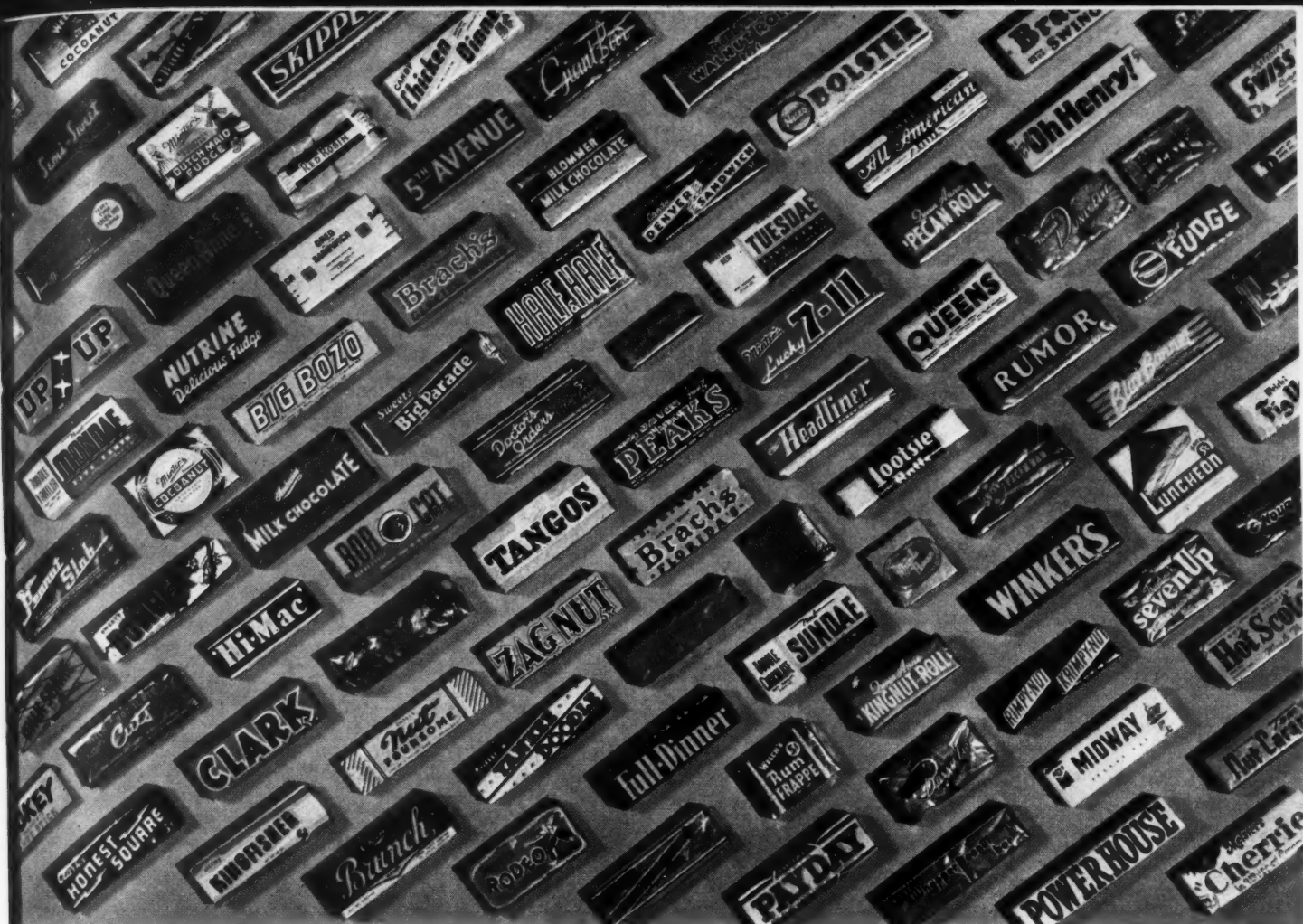
This is only one of the editorial contributions that makes *Modern Plastics* "must" reading for everybody in plastics. It is one of the reasons why the plastics industry and all users of plastics rely on *Modern Plastics* as their guide, reporter, interpreter. The close readership of these men has built *Modern Plastics* into the single, solid, *resultful* medium for more than 400 consistent advertisers.

MODERN **P**LASTICS **MAGAZINE** MEMBER AUDIT BUREAU OF CIRCULATIONS

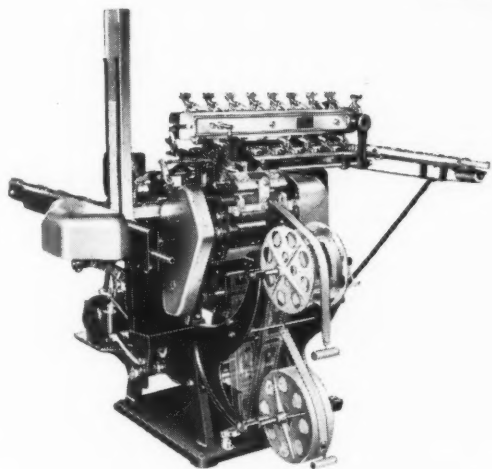
... the only ABC plastics paper
... the authority on the subject
... the established institution in its field
... one of America's great industrial publications!



PUBLISHED BY MODERN PLASTICS, INC.
122 EAST 42nd STREET, NEW YORK 17, N. Y.
Chicago • Washington • Cleveland • Los Angeles



WRAP-O-MATIC NOW WRAPS OVER 170 LEADING CANDY BARS, BISCUITS, AND COOKIES . . . REPRESENTING OVER 80 LARGE MANUFACTURERS!



Wrap-O-Matics are built in 2 basic models—side-intake (illustrated) for direct feeding from enrober belt . . . straight-intake especially designed for multiple piece products.

The Wrap-O-Matic family is growing tremendously fast. Now over 170 leading bars and biscuits representing over 80 large manufacturers, are given the benefits of flawless Wrap-O-Matic wrapping. Here are a few reasons why—

- Over 75% Savings in Wrapping Labor Costs.
- Up to 35% Savings in Wrapping Materials.
- High Speed Wrapping (Up to 120 Units Per Minute).
- Soft and Irregular Shapes no Obstacle.
- Use Any Type Wrapper—Printed in Rolls.
- Extra Sales Appeal at a Big Saving.

Let us help you to streamline your wrapping operation—get the advantage of Wrap-O-Matic. Write today for our new illustrated brochure and complete details.

WRAP-O-MATIC
Lynch
DIVISION

**Manufacturing Corporation, Defiance, Ohio
U. S. A.**



War born IDEAS
FOR POSTWAR PACKAGING

Under Army-Navy Aeronautical specifications, roller bearings are packaged for export in heat-sealed bags of Alcoa Foil laminated to kraft, a material called "Foil Rap 40" made by Rapinwax.



Carton containing a lightning arrester for the Signal Corps is put in an Alcoa Foil plus kraft bag, heat-sealed. Bags shown above and at the left are by courtesy of Rapinwax Paper Company, Chicago.

Steadily increasing quantities of Alcoa Aluminum, released from other vital services, are being used to produce foil for war packages. Aluminum foil's higher resistance to moisture-vapor is the reason. Aluminum foil is a standout in that important packaging property.

By teaming up Alcoa Foil with kraft, sufficient strength is obtained to package machine parts and protect them from rust. Having seen how

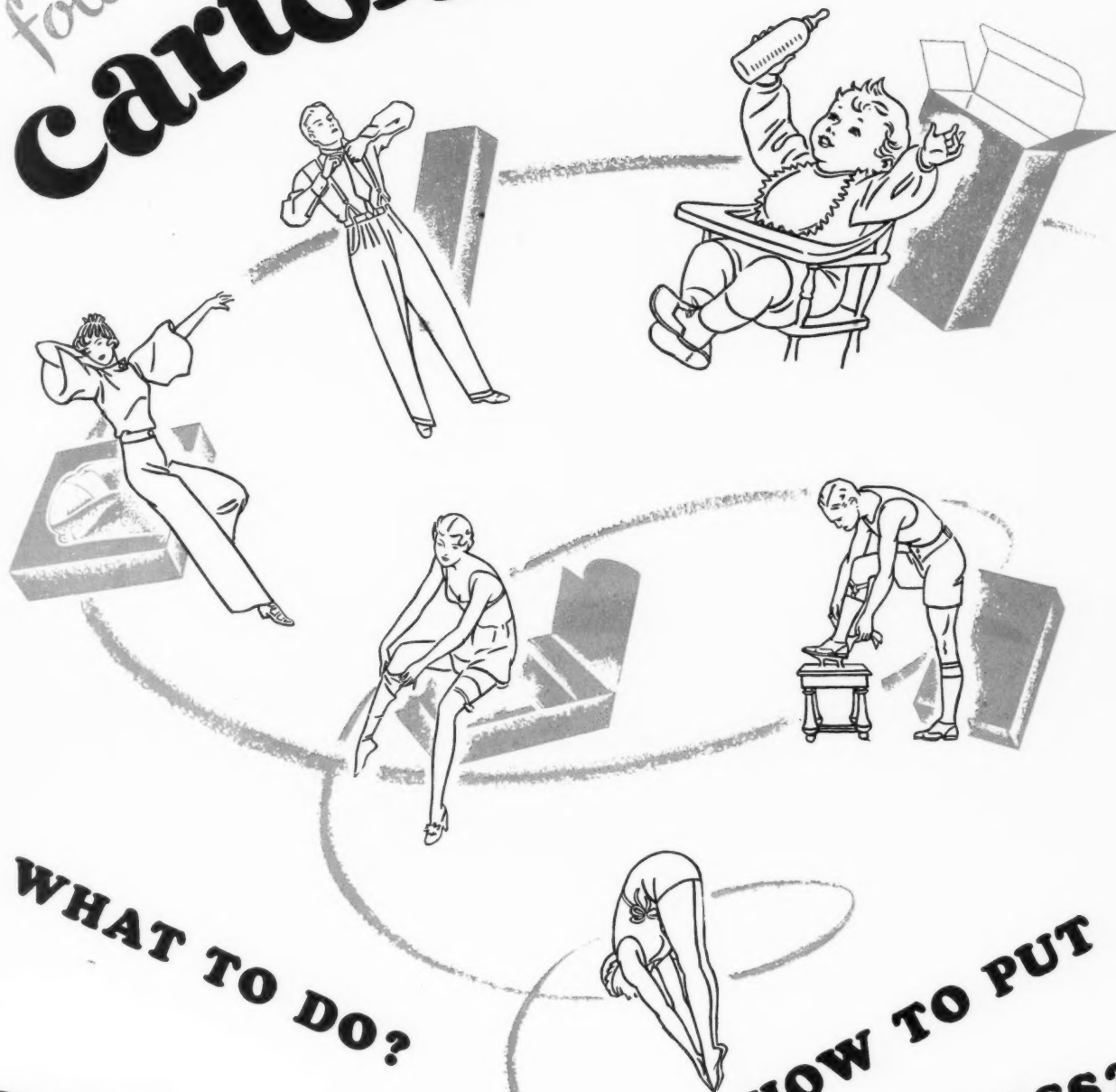
well this combination works, parts manufacturers now have it on their postwar docket.

Many other new ways of using Alcoa Foil, either alone or combined with other materials, have been perfected during the war. If you are looking for a better package, the end of your search may begin by writing ALUMINUM COMPANY OF AMERICA, 2129 Gulf Building, Pittsburgh 19, Penna.



ALCOA FIRST IN ALUMINUM FOIL

folding **cartons!**



WHAT TO DO?
WHERE TO GO?

**HOW TO PUT
IT ACROSS?**



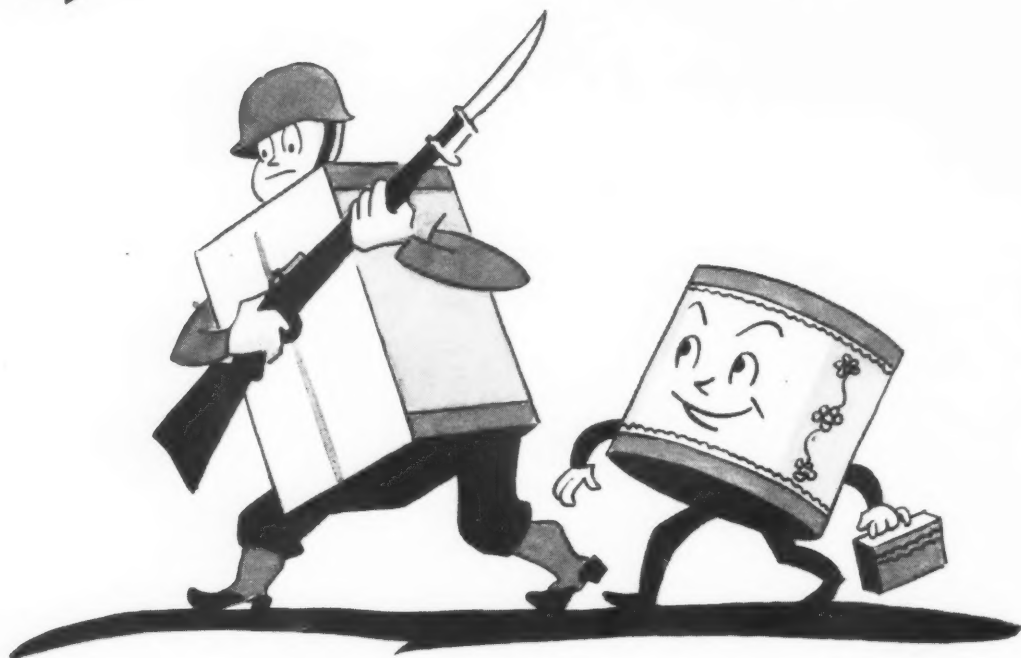
Complete packaging answers at

BROOKS & PORTER, Inc.

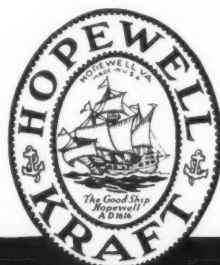
304 HUDSON ST., NEW YORK

PACKAGING AND DISPLAY SPECIALISTS FOR HALF A CENTURY

BODY GUARD FOR YOUR "AMBASSADORS OF GOOD WILL"



Your package is an important personage. It is your counter salesman and your Ambassador of Goodwill. It needs protection if it is to complete its mission successfully. That's the job of the Shipping Container. Hummel-Ross makes the materials from which those shipping containers are manufactured. The stamina and durability of those materials is amply proved by the job they have been doing for our armed forces. Thousands of items of war materials, from Blood Plasma to Bazookas, have been shipped safely in containers made from Hummel-Ross Products. Our wide and rich experience in protecting war-time shipments is yours for peace-time commerce.



Originators • Creators

HUMMEL-ROSS FIBRE CORPORATION

Hopewell, Virginia, U. S. A.

3 reasons why you should investigate
FIDEL-I-TONE*
 HIGH FIDELITY COLOR REPRODUCTION
 for PACKAGING MATERIALS



1 FINER SCREENS

With **FIDEL-I-TONE** super-etched alloy plates, the use of much finer screens is possible, even on uncoated boxboards and paper. **FIDEL-I-TONE** reproduction is delicate and faithful.



2 BRIGHTER COLORS

Because **FIDEL-I-TONE** plates are chemically resistant, certain brilliant pigments that would destroy images on conventional plates can be used. **FIDEL-I-TONE** colors are more intense and less subject to marring.



3 GREATER UNIFORMITY

FIDEL-I-TONE plates are tough and close grained . . . almost indestructible. The 250,000th impression is like the first. You get uniform color and detail, regardless of the length of run.

* TRADE-MARK

It is not too soon to explore the possibilities of **FIDEL-I-TONE** for stepping up the appearance of your postwar packaging. This new Lord Baltimore Press development enables you to obtain color illustrations of eye-arresting beauty on folding boxes, labels and inserts . . . boxboard and paper alike . . . coated or uncoated. We will gladly send you more information.

*Folding Boxes
 Labels
 Inserts*

The Lord Baltimore Press

1500 Greenmount Ave., Baltimore 2, Md.

Sales Offices: 595 Madison Ave., New York 22, N. Y.—ELdorado 5-4180



A NAME TO KEEP IN MIND

HERE'S WHY... *Sheffalloy* currently designates a remarkable war-time collapsible tube metal developed by our research staff. It's a combination of less critical alloys, treated according to our exclusive *Sheffield Process*... a method of mixing, melting, and tempering the metals to a degree of pliable toughness unapproached in the history of collapsible tube manufacture! *Sheffalloy* has maintained collapsible tube dependability for many military and civilian uses. It has permitted huge savings in tin and other vital alloys, contributing substantially to the war effort. *Sheffalloy* (*Sheffield Process*) is a good name to keep in mind! It will always prove a dependable guide towards the toughest... *the strongest*... tubes you can buy.

NEW ENGLAND COLLAPSIBLE TUBE CO.

3132 S. CANAL STREET, CHICAGO 16 • NEW LONDON, CONN. • W. K. SHEFFIELD, V. P., 500 FIFTH AVENUE, NEW YORK 18
THE WILCO COMPANY, 6800 MCKINLEY AVE., LOS ANGELES 1

RALSTON

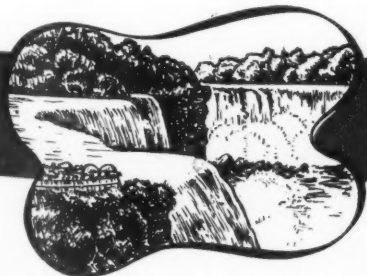
Waterproof Papers Bag, Barrel and Case Liners

PACKAGING PAPERS FOR WAR NEEDS

- Laminated Papers to Meet Government Specifications
- Duplex Papers
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- Reinforced Papers
- Saturated Papers
- Laminated Specialties

Serving the War Effort 100%

Our up-to-the-minute experimental laboratory at Old Bridge, New Jersey, is today being called upon to solve a wide variety of problems in connection with waterproof papers for war needs. After the war is over, this unusual service will be made available to our peace-time customers.



W. Ralston & Co., Inc.
Niagara Falls, N. Y.

Plants at Niagara Falls, New York and Old Bridge, New Jersey
Sales Office, 220 E. 42nd St., New York City



The Package that Helps to Sell the Product is

Clearsite*

The first requisite of any package is PROTECTION. **Clearsite** resilience gives **shatterproof** protection. **Clearsite** is a **seamless**, molded container, able to withstand accidents that would ruin container and contents if made of other less sturdy materials, yet it still retains its distinctive, attractive appearance. **Clearsite** also rates high in eye-appeal. Bear in mind you get protection-when-needed, plus visibility when your container is

TRANSPARENT OR OPAQUE

The crystal clear walls of **Clearsite** permits attractive products to "sell themselves." The opaque **Clearsite** affords equality in any desired color and also shields products that need it, or that do not have eye appeal.

SHATTERPROOF and SEAMLESS

The attractive colorful labeling of **Clearsite** applied in process of manufacture, lends itself to a wide range of products; staples, novelties, powders, metal goods, oils and pastes. A sample demonstrates its values!

*Reg. U. S. Pat. Off.

Our Package Design Engineers are available for Suggestions, ~



CELLUPLASTIC CORPORATION

40 AVENUE L

NEWARK, N. J.

WEST COAST REPRESENTATIVES: CONTAINER SERVICE CO., 1266 North Western Avenue, Los Angeles 27, Cal.



Sell from Sample

Selling from a sample

is old stuff . . . is that what you're thinking? Well, here's a "selling from sample" idea that's just sprouting. We are sure that age will never cripple its effectiveness. It hinges on H & D "Prepak*"—the packaging idea that brings merchandise to retail outlets, packed one sales unit to the box. A sample is displayed. When a sale is completed, the customer's purchase is delivered directly from stock that hasn't been sitting on sales floors, counters or shelves, collecting dust and dirt.



H-D Post-War Packaging Idea PREPAK

"Prepak" helps manufacturers package their products for greater safety in shipment; helps retailers to achieve better store handling service and to reduce over-all packaging costs; provides customers with factory-fresh merchandise. We can tell you what happens when you apply this idea to your products. Send for your copy of "Behind The Scenes at the H & D Package Laboratory" today.

Hinde & Dauch

AUTHORITY ON PACKAGING

*T.M. REG. U.S. PAT. OFF.

THE HINDE & DAUCH PAPER COMPANY, 4514 DECATUR STREET, SANDUSKY, OHIO
Factories in BALTIMORE • BOSTON • BUFFALO • CHICAGO • CLEVELAND • DETROIT • GLOUCESTER, N. J.
HOBOKEN • KANSAS CITY • LENOIR, N. C. • MONTREAL • RICHMOND • ST. LOUIS • SANDUSKY, OHIO • TORONTO



A New Packaging Division

Born of U. S. E. War Packaging Experience

U. S. E. proudly announces the establishment of the *Kellogg Container Division*. Operated for many years as a part of P. P. Kellogg & Co. Division, manufacturing transparent containers and specialties, this unit has during the war grown in packaging experience and in volume, to full-fledged Division stature.

With increased resources and enthusiasm, *Kellogg Container Division* will continue to

pioneer in the solution of protective packaging problems — converting water-moisture-vapor-proof materials into heat-sealable containers, manufacturing bags, boxes and envelopes from transparent and translucent materials and plastics; and studying the characteristics of both military and civilian industry requirements.

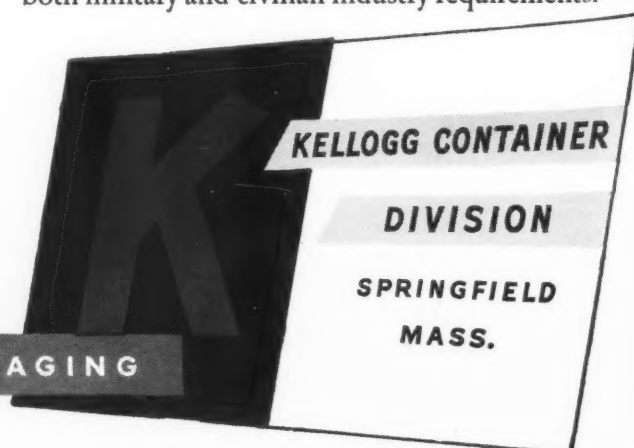
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Millions of beads of Kimble Neutraglas are thus being used. For utmost protection against deterioration, the sodium citrate and the beads are carried in bottles of Kimble Neutraglas to the point where they go into action.

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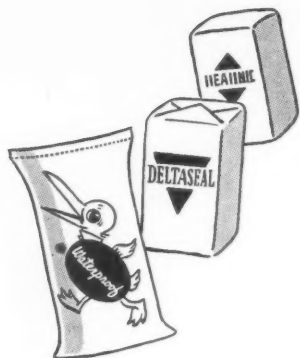


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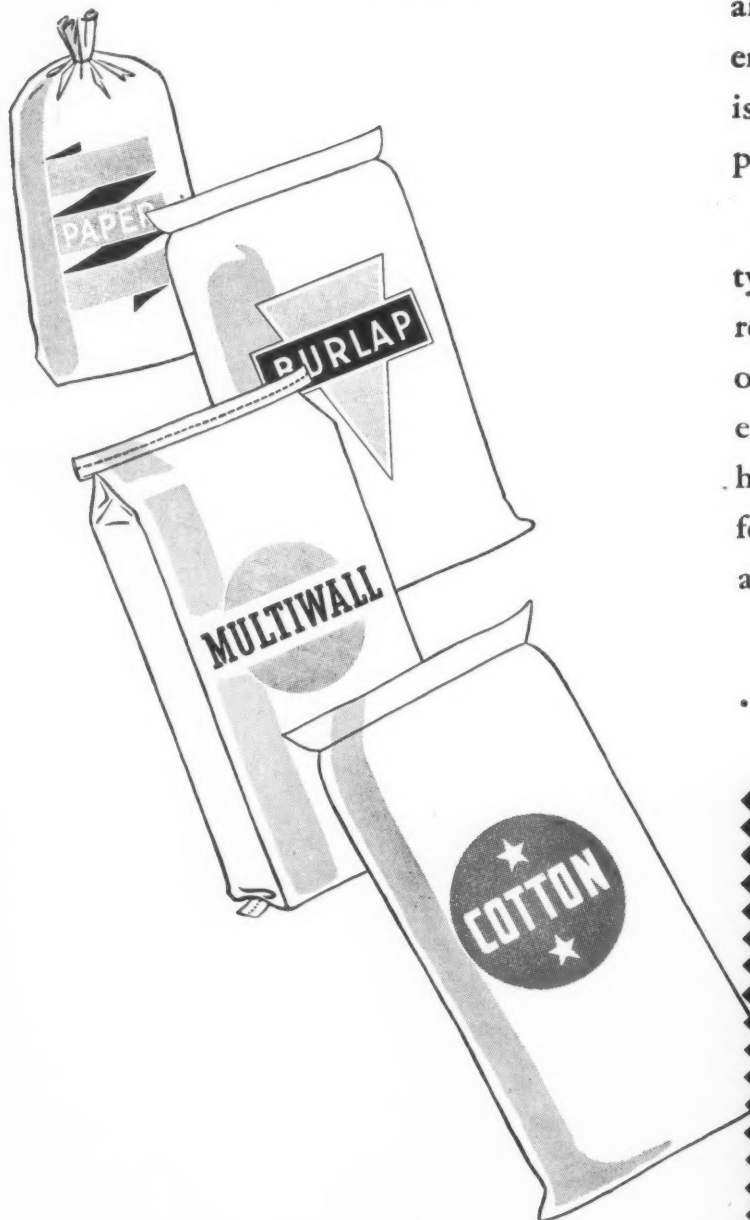
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Whatever's the *best bag for your use*
...we make it.

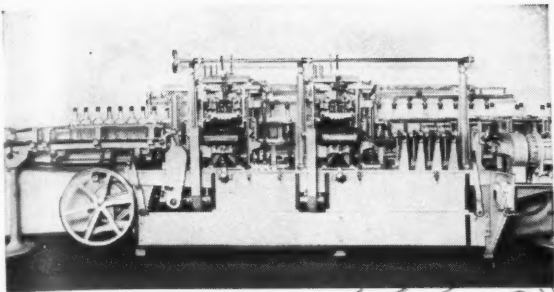
BEMIS BAGS



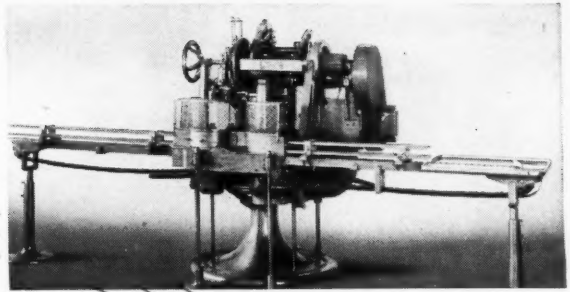
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BETTER BAGS SINCE 1858



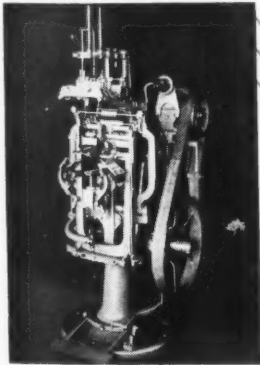
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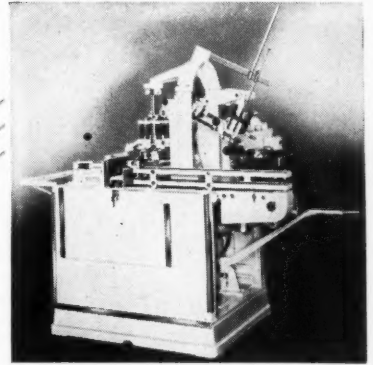
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LOOK OVER THE FOUR CORNERS OF THE WORLD

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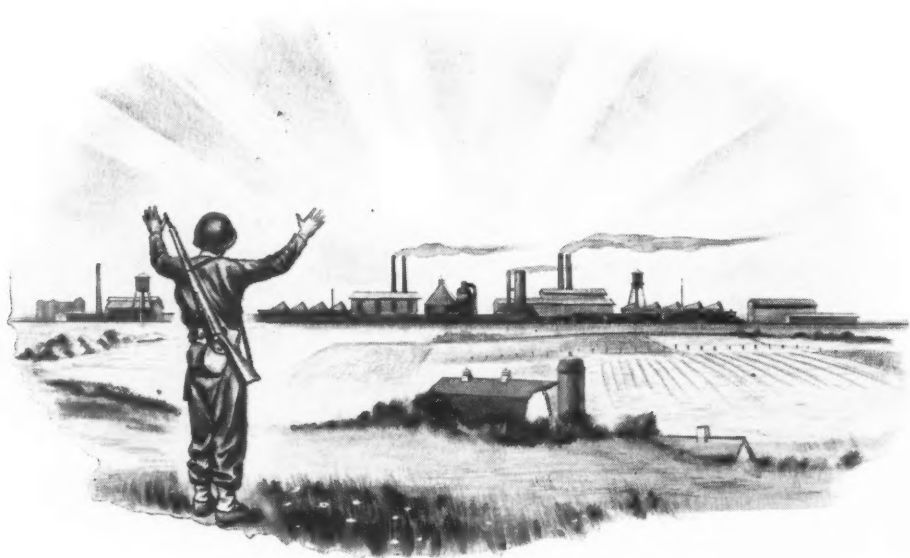
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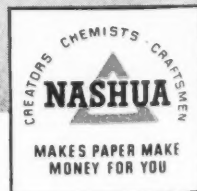
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MODERN PACKAGING

VOLUME 18

JANUARY 1945

NUMBER 5

MILESTONE

"The New Year, blithe and bold, comes up to take his own."

—TENNYSON.

Packaging moved ahead in 1944, though its path was not smooth. Signal achievements came despite the difficulties of the shortage era. In sheer physical volume, more packaging was done than ever before. Statistics gathered by the WPB Containers Division report increases in production of all types of containers, some of which were scarcely heard of before the present emergency. Supply has recently been gaining on demand with respect to some packaging materials, but for the most part the packaging field must continue to operate under strict governmental controls.

Better packaging has been done than ever before. The war's valuable lessons have made an indelible impression. Technical evaluation of the properties of various materials has become standard practice. The necessities of the times have accelerated this. New materials, offered in substitution for unobtainable old stand-bys, could not be given a long period of practical use in which to demonstrate their adequacy. They had to be tested by scientific methods, quick and sure, before they could be accepted. Thus a habit of mind has come to be adopted which promises to stay. The package buyer will buy uses and functions after tests have proved that materials can meet his requirements.

Management is taking a new attitude toward packaging. Package supervisors or co-ordinators of executive rank are appearing in increasing numbers, their chief responsibility to make sure that all aspects of packaging are fully considered. To that end, they draw on every department—research, purchasing, production, legal, sales, advertising, merchandising—for suggestions and assistance. This procedure insures a balanced and scientific approach to package problems that eliminates guesswork, hunch and whim.

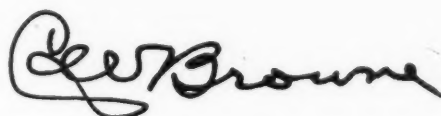
The producer of packaged merchandise keeps in mind one tremendously important factor—consumer favor. It is true that most industries currently have only one customer, a customer who makes purchases on strict specifications, both as to product and package. In the field of civilian supply, however, the present time offers an opportunity for consumer exploitation and quick profit-taking. To the credit of business be it said that this opportunity, for the most part, has gone begging. The majority of American business houses know the consumer has a long memory, and they

are looking ahead. The Food and Drug Administration will tell you that, although there is an irresponsible fringe, business as a whole knows the folly of deceptive packaging and misleading labeling.

With all the emphasis on utility and function, package beauty has begun to stage a comeback. Two years ago, early in the shortage era, chief consideration was protection, and if the substitute package resembled its predecessor sufficiently to insure recognition, that was deemed enough. Now—despite the fact that shelves are empty and consumers take anything—attention is being paid to package appearance, primarily because merchandisers are looking forward to the return of the buyer's market. True, not many new packages have as yet actually been launched, but package designers are in greater demand than they have been for years. Safe guess is that there will be a tidal wave of new designs just as soon as normal production is resumed.

With the war's end will come a return to competitive enterprise. Governmental control, we all know, has been imperative for the great emergency, but few of us would adopt it permanently. We want the invigorating stimulus of competition. We like its activity and value its salutary results.

But we must prepare for its return; the transition will not be too easy. Today, the customer must stand in line and take thankfully whatever is available. Tomorrow he will again be in command, making his selections according to standards of his own devising. That means a reversal of sales attitude. The forward-looking supplier, if he must say "No" today to a would-be purchaser, does it sympathetically and he will plan tomorrow's sales activity to include provision for intelligent analysis of customer needs—production of goods and services that meet customer standards and sales presentations that have a wholesome respect for potential competition. Those are ways in which markets will be re-established.



EDITOR-IN-CHIEF



1—This new department store hosiery pack, in transparent cellophane, will compete in customer convenience with anything the "package" stores have to offer.

Department Stores a challenge to packaging

by Albert Bliss*

the same condition of style and service from the package store, nor does she usually expect the same range of assortments or types. For example, she doesn't expect to find as many cameras in a drug store as she does in a department store. She doesn't expect to find many articles that she must try on before buying. These additional types, so peculiar to the department store, present packaging problems different from those of the package stores.

In brief, there are numerous items in the department store (large wearing apparel, furniture, heavy appliances) that cannot be packaged at all. There are other articles (gloves, shoes, men's hats, etc.) that can be pre-packaged, but not pre-sealed. There are great quantities that can be pre-packaged and pre-sealed. This discussion does not propose to deal only with the latter type of merchandise, because such a limited position would defeat the broad purpose, which is to point out to those designers who are inexperienced with the development of store operation how the multiple varieties of stock carried by the department store affect its selling tactics and might affect any new packaging techniques that might be developed for it.

We should particularly note that every department store, regardless of the income group it is catering to, appeals through style, service and assortments. Of course, these conditions may vary in degree, but in degree only, because when they are eliminated altogether the department store loses its well-recognized character and becomes something else. In short, while methods vary, there is no rooted difference between the principles governing the success of the low-style, low-price department store and the high-style, high-priced department store.

At the risk of over-simplification, we could say that the department store must operate in a plant that provides for great mobility of space, while the shelves and counters of the package store remain static. Style merchandise demands this mobility action. It is constantly changing in type and size. These changes exercise an inconstant influence on the heights, widths and lengths of the counters, cases, shelves and tables used to stock and sell.

For example, this season millinery styles may run to small hats requiring less than the total space available; four months later, large hats are wanted, giving the draftsman architectural labor pains trying to find room for them. Or a new idea in merchandising pops up and the outdoor grill elbows its way into the pots and pans. It is possible that over 80% of the department store stock is of this style nature. The package store does not have this problem; probably 90% of its stock is of a staple nature with different types in standard sizes (cosmetics, cigarettes, candies, canned goods, etc.).

Not only does the independent department store have to plan for style and size changes; it also has to change selling locations continually. As styles become "hot" they must be moved to locations adjacent to heavy traffic lanes. When

Little, if any, conscious effort has been made to solve the peculiar packaging problems of the independent department stores. When packaged goods show up on the shelves of these stores it is more accidental than otherwise. The packages haven't been planned to meet the special requirements of department store selling.

I believe I am safe in saying that at present most packages are created for drug, cigar, grocery and smallwares variety stores. The packaging of products for this type of store has, through excellent experimental research, been so scientifically developed that the store's dollar volume and profit may be said to depend upon inventive packaging as much as on the product contained therein. In fact, I like to think of these as "package stores," as contrasted with the department stores where merchandise is still largely not packaged.

But the manufacturers and designers of products that are now being packaged or could be packaged are missing a big opportunity unless they act now to do a better packaging job for the independent department stores, because:

1. Dollar volume of these stores warrants important consideration. Federal Reserve Bank figures for 1943 show that sales of independent department stores reached slightly under \$2½ billion.

2. Their isolated weakness is disappearing because independent stores are rapidly affiliating with others to gain the advantage of mass purchasing power.

What is the difference between the department store and the "package store"? While the broad purpose of both is the same—to give better value for less money and still show safe profits—there are two basic differences: The customer of the department store includes in her conception of full value the conditions of style and service; she also expects wide assortments in style, type and price. The customer does not expect

* President, Division of Visual Merchandising, Bliss Display Corp., N. Y. C.

they cool off, they must be removed from "spot locations."

Seasonal consumer interest also requires mobility of placement. Christmas toy departments expand as much as 500% in October. Beach wear shrinks to practically nothing by the first of August. These problems, again, do not exist for the package store.

In short, the packaging techniques of the package store have been planned around stock shelves, cases and counters that have become immobile within the confines of the overall space. Radical location changes are unnecessary. When volume in the package store increases beyond a planned capacity, a new store is opened in the vicinity.

The reverse of this condition exists in the department store. Here space must be fluid to permit the necessary selling-area changes mentioned above. Incidentally, these moves may come up on a moment's notice and often require radical changes in the shape and size of existing shelves, counters and cases. When the department store fails to provide this freedom of movement and freezes its boundaries and departmental frontiers, it loses its character of style, service and assortment. When the volume in any one department increases beyond that planned for, no new store can be opened in the vicinity; the department itself must expand its frontiers. This is often possible, because usually when one department increases its volume there is another that is losing

volume, and the former at the expense of the latter.

What has all this to do with packaging? Well, to understand the problem of the department store, the manufacturer and designer of packaged goods must fit his designs to the requirements of space mobility. This does not mean that the sizes and shapes of individual packages must continually change to conform to location moves in the mobile store. That is ridiculously impossible. However, it does affirm that the package designer must package his product as small as possible, so that when merchandising moves are necessary, there will be *no lost space* to hamper efficiency.

If the reader considers this remark superfluous, let him first stop to think about existing sizes of the following items—packaged or not—as they lie waiting for the customer: men's shirts, underwear, socks, ties (forget garters, braces and handkerchiefs because a pretty good job has already been done on these), ladies' hose and intimate apparel, such as bras, lingerie, girdles; costume jewelry, umbrellas, gloves, sheets and pillow cases, towels and bathroom linens, infants-wear (all of it, including the whole layette). If he thinks about the awkward sizes of these items, and realizes how many different sizes the same item comes in, he will recognize that many items can be folded to a smaller size and pre-packaged without destroying the immediate wearability of the item. He will also note the opportunities for standardiza-



2—The department store cosmetic counter emphasizes an appeal to style and service. Contrast the packaging requirements here with photo below.



3—Cosmetics in New York drug store—a compact, high-speed selling setup depending heavily upon the merchandising functions of the package.



4—This photo shows the fall sportswear section in a large New York department store in contrast to the same space shown in illustration below.

5—The same section converted six months later to summer sportswear. This illustrates the mobility essential to department store selling.



tion of package size, and with it the selling fixtures.

The domestic department is a good example of space trouble caused by lack of standardization. Sheets and pillow cases could be pre-packaged to a standard size if the manufacturers would cooperate. Men's shirts have been folded to a standard size, but they are still over 50% too big. If one manufacturer supplies a package of the smaller size and the rest do not, little stock space has been saved for the store.

While it is hoped to increase the efficiency of the selling area of the department store, there will be many manufacturers who will hesitate to reduce the size of their packaged product for three obvious reasons: (1) fear that smallness of size will reduce the eye appeal of the product; (2) fear that competitors will be reluctant to cooperate in standardization of size—each hoping to get a better display break than the other, and (3), the normal tendency, when a product not now packaged gets under cover, to provide copy space as large as possible for branding purposes.

If the department store proposes to stock its forward shelves in the future as in the past, the resistance to size reduction on the part of the manufacturers will be unquestionably reasonable. But if the department store proceeds with sample selling techniques, the manufacturer who neglects to cooperate with this space-saving crusade fails in his obligation to provide the tactics that will objectify the department store's over-all strategy, which is "to sell greater quantities of better merchandise at lower prices and still show safe profits."

What, in simple terms, does sample selling mean? It means that the sample shown to the customer will be of the largest possible size so that its undeniably best quality can be seen and handled with speed and clarity; so that this best feature is dramatized to excite quick appeal. It means that every

other feature of the sample, including color, texture, silhouette, function and price, will be seen instantly and recognized by the greatest number of shoppers all at once and at all times. It means that the sample will have plenty of "air" surrounding it so that its style character bears conviction. It means that the sample, if too small to be seen by the fast-moving pedestrian, will be surrounded by a visual-selling aid which has sufficient contrast, brilliance of color and decorative atmosphere to arrest the disinterested moving eye.

Sample selling means a reduction in selling costs because the speed of the turnover will increase in direct proportion to the speed with which the customer sees what she wants to buy. When a sale depends on the question "What can I show you, Madam?" or "What do you wish to see?" costly time is lost because the next customer must wait while the showing process is going on. If any axiom applies to retailing, it is that "the customer must see what she expects to buy." Sample selling will make it possible for the greatest number of customers instantly to see one of every item for sale. Furniture and heavy appliances are examples of sample selling at present.

The space to show one of every item sold is not available in any department store now. One of the reasons is that the size of the duplicate stock has not been reduced as far as possible. Logically then, under a system of sample selling, the sample will be as big as possible and the duplicate or forward stock will be as small as possible.

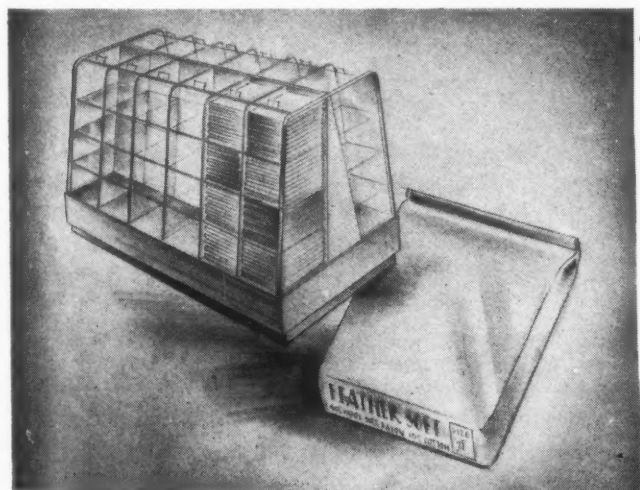
For those who claim that sample selling means losses in handled goods, let them compare the cost of sample replacements with the losses now taken on damaged exposed stock; also losses in hidden stock that continually gets lost in the back of drawers and shelves—let alone losses in time necessary to make a sale.

There are those who will claim that sample selling with the duplicate stock pre-packaged in its smallest possible size will destroy the "style look" and the "full-stock look" of the department store. To answer this argument, let us not forget that competent visual merchandising of the sample can make it look as style-right as *Harper's Bazaar* or *Vogue*. The sample, when surrounded by chic color arrangements and skillfully selected devices to attract popular interest through the association of ideas will supply the style-right character that the customer expects to find in the department store. Bamboo suggests resortwear; plastic sheets and rods when cleverly combined with polarized lighting effects will appeal to the popular interest centering on postwar radios, electronic devices, and household appliances.

Appropriate labeling on the package can supplement the visual presentation of the sample and can contribute to the heavy-stock character of the store. The average shoe department today shows probably 100 box ends for every shoe on display; yet this department looks busy, neat and full-stocked.

In connection with department store labeling, much research must be done. Most opinions are controversial. Should brand names be large or small? Should the individual department store signature supersede the brand name? Should label size and color reach for standardization or should competition explode standardization?

While these questions are debatable, there is one formula for department store label design that is axiomatic; that is, that all printed information should be directly informative, not only to the customer but to the sales person as well. The label designer must recognize that the turnover in department store sales help is much greater than that in package stores.



6

Too frequently the decorative device on the label, the hallmark or "picture," will expand at the expense of the space that could be used more profitably to tell the customer and the salesgirl about the type, size and function of the product concealed in the package.

I recently purchased a pre-packaged product on which was attached a label 6 in. long by 4 in. wide. During the sales talk, the question of available colors came up. The salesgirl didn't know. We both looked at the label but couldn't find the information. She then proceeded to tear small openings in the outer wrappers, and eventually we learned that the product came in three colors. Upon arriving home, I discovered, in letters of 6 pt. size on the label, that I had bought—dk. green. Incidentally, the label wasn't wanting for colors, pictures and copy, none of which sold anything.

The department store, unlike the package store, appeals largely to the woman shopper. Surveys indicate that the woman will not buy as fast as the man. Surveys also indicate that she will buy more on impulse than the man. Therefore, the color, shape and detail of the label should appeal to the impulse of the woman. It should be feminine. It should be what she thinks is "smart."

Psychological selling tests indicate that there is one feature about every product that should be high-lighted because this feature attracts the greatest amount of consumer acceptance. For example, a man's sports shirt once sold a large volume because it had pearl buttons. If this shirt were to be pre-packaged, then the label should carry a message in a word or words that would "sell" this one best feature. Don't forget that the sample when spread out at a focal point will also dramatize this one best feature which should appear on the label. Make it big and clear. Market tests should be made by the manufacturer to determine key sales features.

The woman shopper probably is more critical about color than any other one feature. Therefore, in designing a package that will be pre-sealed for department store selling, try to show as much of the actual product as possible behind the protective transparent wrapping.

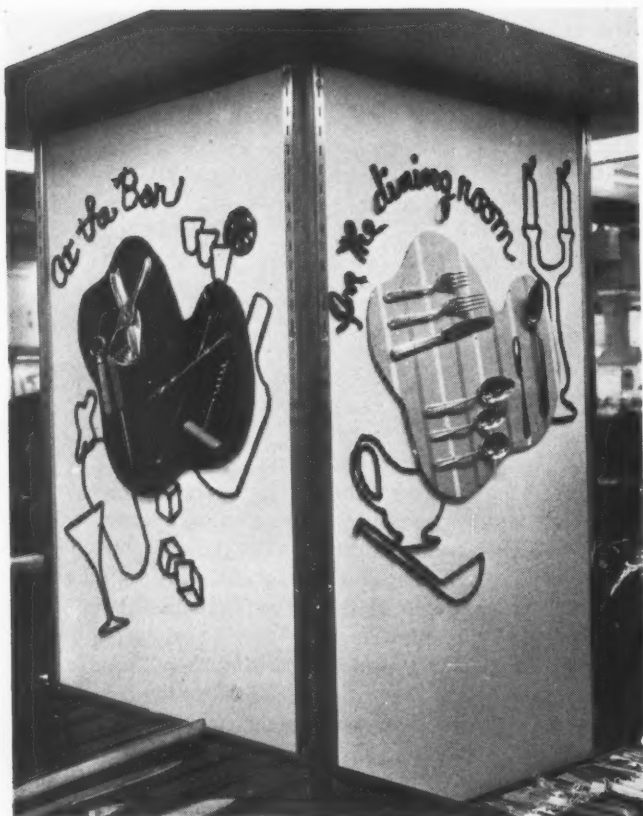
If it is impossible to display the actual product behind a

6—Designer's sketch of a stock container with glass partitions for sweaters. Each fixture will hold 640 units of stock in an area 3 ft. wide by 5 ft. long and 4 ft. 6 in. high. Style and service are retained. Close-up shows transparent sweater pack designed to prevent shrinkage of stock and labeled to provide complete information.

7—Contrast above set-up with existing department store sweater section showing the typical bargain-table technique. Note the untidy unprotected stock, confused assortments and costly waste of space.



7



8

transparent cover, try to incorporate an actual swatch of the color and material on the outside of the box. If this proves too costly, make every effort to have the color sample printed clearly where it can be seen at all times by the greatest number of shoppers. This printed color should be separated from and in contrast to the general color of the box stock. It must match the color of the product inside exactly; otherwise there will be wasteful returns.

In connection with color nomenclature, the average woman is attracted to and understands names which would be confusing and even repugnant to a man. Just recently a large millinery retailer did a terrific mail order business on a \$2 woman's hat from a newspaper ad including a sketch of the hat and the available colors specified by these names: fuchsia, persian lime, acqua, blond maple, cocoa and cognac. There was not a single return because of color misunderstanding.

The department store customer expects more convenience than the package store buyer. Yet package store items are generally packaged to the minimum size for easy carrying, while little attention has been given to providing this convenient feature in department store merchandise.

The opportunities for related selling are greater in the department store than in the package store. Varieties are greater and, in many departments, assortments of varieties are greater. The department store has made great strides in locating departments of related merchandise adjacent to each other. Note bags, gloves and hosiery on the main floor; bathroom requisites in the bath shop; men's shirts, ties, socks, etc., in the men's shop. This efficient geographic departmentalism represents an additional customer convenience because it cuts down shopping time. It also represents potential added volume—rubbers and umbrellas go together; beach goggles, suntan preparations and bathing suits are often wanted at the same time. The package designer could increase the efficiency of related selling by correlating the contours, color and general appearance of packages which may sell related merchandise.

Packaging that is decoratively effective has promotional value to the department store. We all know how the well-recognized Christmas box advertises the department store as it travels through streets, in buses and subways during the holiday season. This decoratively attractive package can work to advertise a brand in the same manner during the entire year.

Wrapping cost in material and time is an appreciable factor of total department store costs. Pre-packaging and pre-wrapping can mean one and the same thing. Pre-wrapping when it incorporates space-saving and promotional features can be expected to effect further real economies for the department store. This pre-wrapping when standardized by the manufacturer could be done at low rates because of volume production. The slight additional cost of pre-wrapping on this basis would show a net cost to the department store that would vastly offset the existing costs of wrapping at the point of sale.

In connection with customer convenience and promotional productivity, there are numerous items of department store stock that could be packaged in containers that not only have sales appeal and achieve space saving, but will serve as attractive and convenient con-

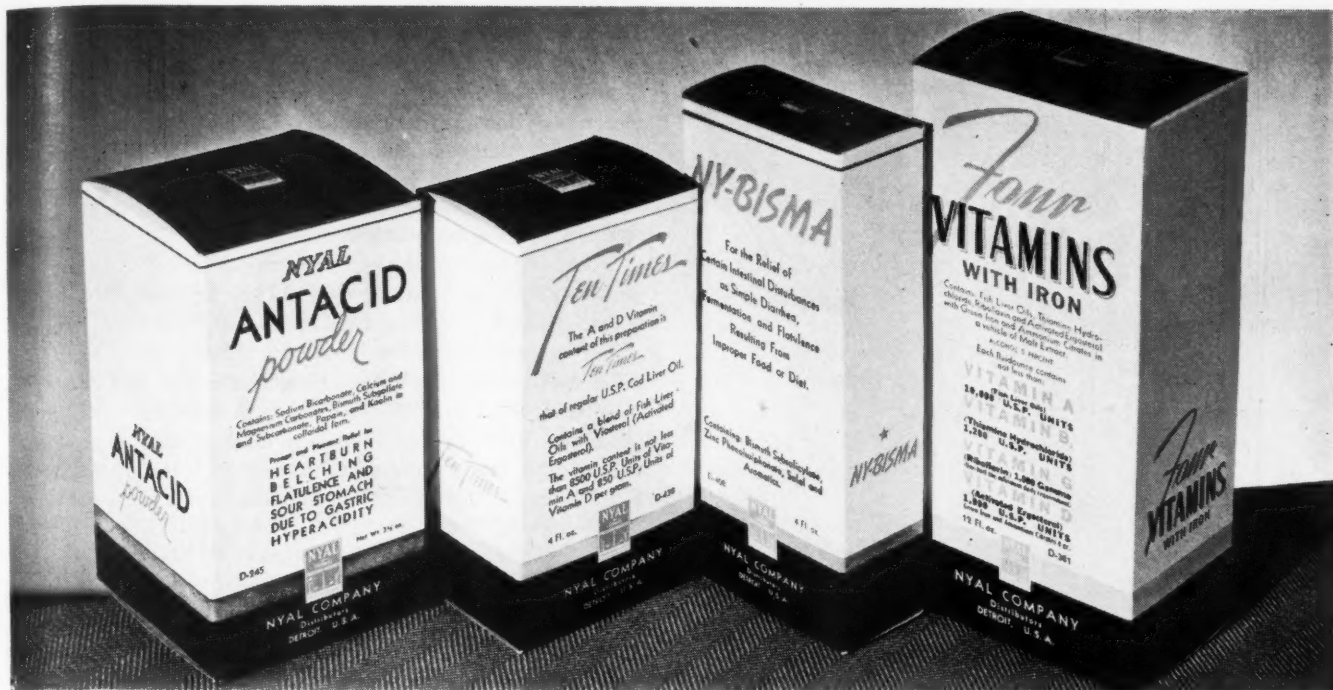
(Continued on page 148)

8—Packaging and sample selling requires visual selling aids such as these used to emphasize small wares products.

9—Here are some commendable examples of prepackaged hosiery offering both eye appeal and convenience.



9



PHOTOS BY ANTON

1—Sales have increased 66% since Nyal products dropped their economical but drab black-on-orange cartons. This newly redesigned group has pure white panels with the lettering and trim done in bold red and black.

Sprightly cartons for 300 Nyal products

For about 40 years the Nyal Co., Detroit, has been selling hundreds of different pharmaceuticals to independent drug stores throughout the nation in virtually identical packages. Orange and black was the color scheme which during these years identified the "Nyal family."

Five years ago, in April 1939, E. P. Matthiessen succeeded the late Mackellar Graham as president. Mr. Matthiessen brought with him to the company a background experience which included the management of three prominent cosmetic houses and the operation of his own trade counsel firm. Up until 1928 for a number of years he had been sales manager of Houbigant. Subsequently, he became one of the organizers of Lenthéric, and in 1934 was sales counsel and general manager for Elizabeth Arden. It was not surprising, therefore, that one of his first acts as Nyal president was to gaze in dismay at the sea of orange black and decide to do something about it.

"We resolved to bring a modified form of the cosmetic type of packaging to the pharmaceutical field," Mr. Matthiessen says in explaining the present Nyal packaging program, which is gradually being expanded to include the entire line of some 300 products sold in drug stores from coast to coast.

Naturally the change could not and should not be made overnight. To date 50 of the 300 products have been re-packaged. In another year, the program will be completed.

The familiar orange and black packages played up the Nyal name, rather than the different types of health products they contained. Individuality was completely sacrificed for the family idea.

"Now naturally," says Mr. Matthiessen, "we did not wish to lose the plus values of family identification, yet we did want our products to enter more closely than they seemed to

be in competition with other brands of the same merchandise. We did not wish them to be sold, in other words, exclusively as Nyal, but rather as antiseptics, dentifrices, and so forth.

"Our first step, therefore, was to design and register a dignified Nyal trademark, which would quickly identify our products without unnecessary overemphasis on the company name. We agreed upon a simple design showing in the background a chemist's scales flanked at either side by glass graduates, with the legend: 'Science... Precision... Integrity... Your Safeguards.'"

Nyal began using this trademark first in March 1940. It was registered Nov. 23, 1943. Now it appears on practically all Nyal packages. It is also used on the store fronts and windows of agent stores selling the line.

The change has been gradual to avoid confusing consumers and dealers who had become accustomed to the traditional orange and black theme. Nyal believes that it has retained a family resemblance in all its packages redesigned so far, and yet has given each one an individuality of its own.

"Women are big buyers of pharmaceuticals as they are of cosmetics," Mr. Matthiessen points out. "It is just as important to give a feminine quality to effervescent salts as it is to perfume or lipstick.

"We believed we could utilize colors to identify the different products we intended to re-package. But, first of all, we thought health products should be surrounded with that same sanitary atmosphere that is accomplished by white paint in hospitals and laboratories. A basic white background, therefore, is found in all our new packages, which, however, differ according to product categories. Two tones of blue, for instance, mark the antiseptic series. Most Nyal internal medi-



cines are distinguished by a red and black package color scheme, while a brown and green combination has been adopted for the laxatives. The orange and black is still used on preparations for the relief of colds, but whereas formerly the background was solid orange, we have given it a lift with plenty of white, leaving the color chiefly on top and bottom. The effervescent salts have been packaged in lively blue-green with an appropriate bubble motif."

Mr. Matthiessen is giving the re-packaging program his personal attention. At the start of the program Everett W. King, a package designer then located in New York, was engaged and worked on the problem. Subsequently Mr. King entered the Army Air Forces, became a major, and in March 1943, was killed in action in the South Pacific. Now, while an outside artist is occasionally engaged, Nyal's own packaging art department is doing the major part of the work. Nyal also makes its package cartons and has its own printing plant making labels. Assisting Mr. Matthiessen in the redesigning is E. C. Kidd, vice-president in charge of advertising.

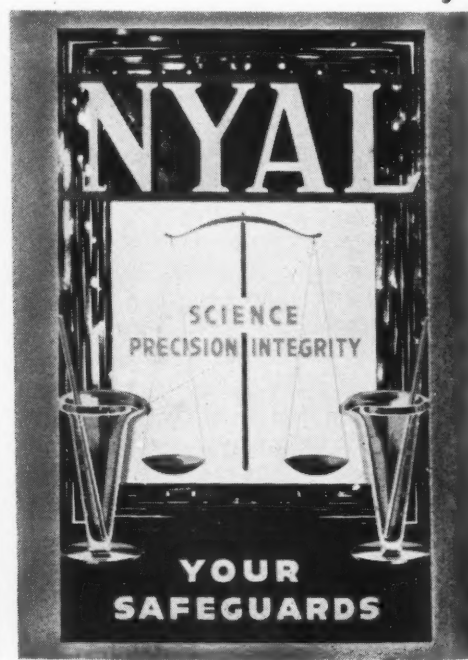
The former orange and black packages had been standardized in that scheme naturally as an economy measure. Acres of packaging materials could be prepared at the same time without changing ink or the printing press rollers. While adoption of the different color schemes did result in an immediate increase in cost, the resulting upswing in sales made up the difference in short order, according to Mr. Matthiessen.

"Acceptance of the new packages as we introduced them to the trade and to consumers was immediately favorable,"



2—Unusual eye-drops container, ampul-like bottle with rubber cap and push-in rubber base, was taken out of orange carton and marketed in transparent cellulose acetate (left). Side by side, new outsells old three to one.

3—Aseptic powders have plenty of clean white, two tones of blue. Two left are fibre cans with bright metal shaker tops. 4—Multi-Tone vitamins are bright yellow tablets in yellow and brown carton. Vita-Vims in die-cut platform are in blue-and-silver box. "Before and After" carton has visual front pointing up treatment schedule. 5—New Nyal trademark is used on new cartons to provide family link.



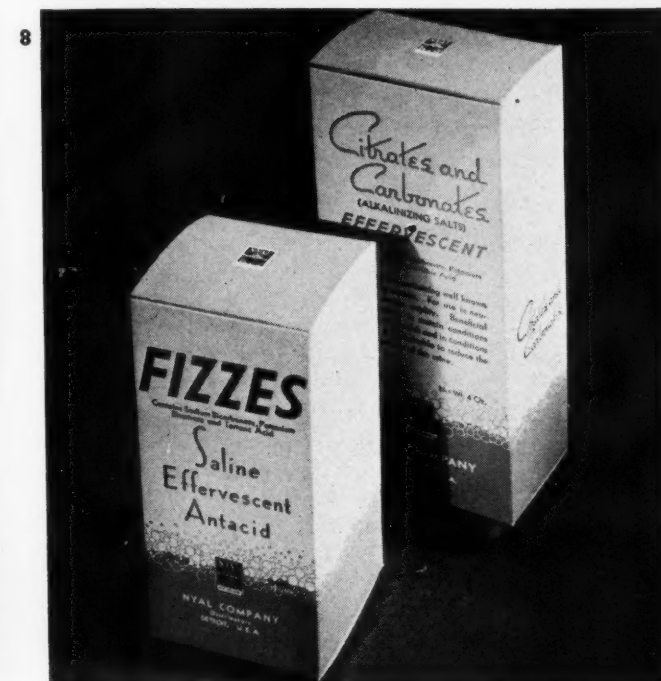
Mr. Matthiessen states. "We were encouraged to go on and now we will not stop until all 300 of our products are outfitted in new dresses. We believe that re-packaging has contributed substantially to our overall increase in sales of 66% during the past three years."

Re-packaging of the Nyal line has also resulted in the development of what amounts to new products. A striking example is the case of Nyal eye drops.

Mr. Matthiessen was struck by the unique glass eye-dropper container in which the product was sold at the time he became associated with the company. In fact, it was such a good container that he decided it should be seen by prospective customers instead of being hidden, as it was, inside the orange and black carton. A transparent acetate container, consequently, was created for the eye drops and when it was brought to the trade in its new form it was given the new name of "Eyemaster." The regular Nyal eye drops are still being offered encased in the old box, but the new "Eyemaster" is outselling it three to one, according to Mr. Matthiessen. The newly named product is also being distributed in a specially prepared counter display package that provides it with outstanding eye appeal.

"Our original theories in regard to re-packaging have been emphatically confirmed by our practical selling experience," Mr. Matthiessen concluded. "We know now that it is true that, in addition to the reliability and effectiveness of a medical preparation, public acceptance is increased by distinctive modern packaging. Consumers appreciate packaging that improves the appearance of home medicine chests, and they also want packaging that permits easy and sure identification of various medicines."

6—Metal-top fibre can at left has two tones of blue on white; all-paper cans are cream with red lettering, blue-green band. 7—Laxatives are distinctive with brown and green on white. 8—Effervescent salts have sprightly lettering and appropriate bubble motif. Colors are black and a lively blue-green on white. 9—Burn ointments are cool-looking dark blue on white. Note that tops and bottoms of most cartons are dark to resist shelf soiling.





U. S. ARMY SIGNAL CORPS PHOTO

1—One section of the "tropic proofing" packaging exhibition at Feltham, Middlesex, England, featuring American preservation methods. Some of the enlarged photographs will be familiar to readers as they were borrowed from the files of this magazine.

Tropic proofing... a new "must" in war packaging*

Military authorities in the tropics have expressed serious concern that much equipment produced for the European theatre cannot be used when it reaches the Far East. Reports from U. S. Army Transportation Corps inspectors have made it quite clear that standards of preservation and packaging for temperate climates seldom withstand the rigorous conditions in the tropics.

When hostilities cease in Europe it will be necessary to transfer equipment to the East immediately. In addition, equipment at present being produced must be available for any operational front, and be packed and preserved to stand up to the severest conditions encountered anywhere. This is the policy that has now been laid down for preservation and packaging.

At the Central Ordnance Depot, Feltham, Middlesex, England, an exhibition of American packaging methods has been opened to show British manufacturers the vital importance of protecting adequately stores for the war in the tropics, and the best means of implementing these new standards in their own work.

The most superficial examination of conditions prevailing in the Far East will reveal striking contrasts with those in Europe. In many countries, railways are primitive or non-existent. Roads are few, narrow, tortuous, and badly surfaced. Where the terrain is mountainous, it is frequently rugged or covered with thick jungle, or broken up with narrow valleys, torrential streams, or gorges. Where the country is flat, streams and rivers form deltas at their mouths, and swamps impede progress. Few modern ports are available, and harbor facilities are generally inadequate for the tremendous job of handling and storing the materials needed for the war against Japan.

If the difficulties of terrain were not enough, there are the added complications of extremely severe climatic conditions. Humidity is particularly high. In some areas 80 to 98% is

not uncommon. Temperatures range from extreme cold to extreme heat, the sun temperature often reaching 165 deg. F, and the shade temperature being normally about 90 deg. F. in the daytime with a sharp fall at sundown. Rainfall can often be measured in feet or yards, not merely in inches. For instance, in certain mountainous areas over 3,000 ft., the average annual rainfall exceeds 300 in.

These torrential rains relentlessly penetrate into the interior of packages and cause damage that may prevent the equipment ever being used.

The question of transport into the interior often resolves itself into a choice between human bearers and air transport. If aircraft are used, and the stores have to be dropped by parachute, weights of packages must be limited. If human bearers are the only means of transport, difficulties of terrain and the enervating effect of the climate greatly reduce their carrying capacity. It has been found that 40 lb. is the average limit of the load that a man can carry. In some circumstances it is as low as 25 lb.

Equipment transported under these conditions obviously requires very careful packing to withstand severe shocks, and thorough preservation to resist climatic conditions.

The exhibition at Feltham graphically shows by a series of operational photographs and films the hazards which are encountered in the Far East. A "chamber of horrors" also illustrates what happens to packs that have not been adequate for the job. Then, to give manufacturers an idea of the packs that have successfully withstood the ravages of the tropics, and how other manufacturers have tackled the problem of preservation and packaging, there are displays of actual packs specified by the services for the Far East, and various films which demonstrate clearly the various stages of preservation and packaging step by step.

It is emphasized, and laid down as a standard, that packages should, under the worst possible climatic conditions, reach operational theatres with their contents in serviceable condition after one or both of the following contingencies:

* This article was approved for publication by Supreme Headquarters, American Expeditionary Forces.

1. Tropical storage of the outer container for a period of 12 months.
2. Tropical exposure of the inner container and its contents for a period of 30 days after removal from the outer container.

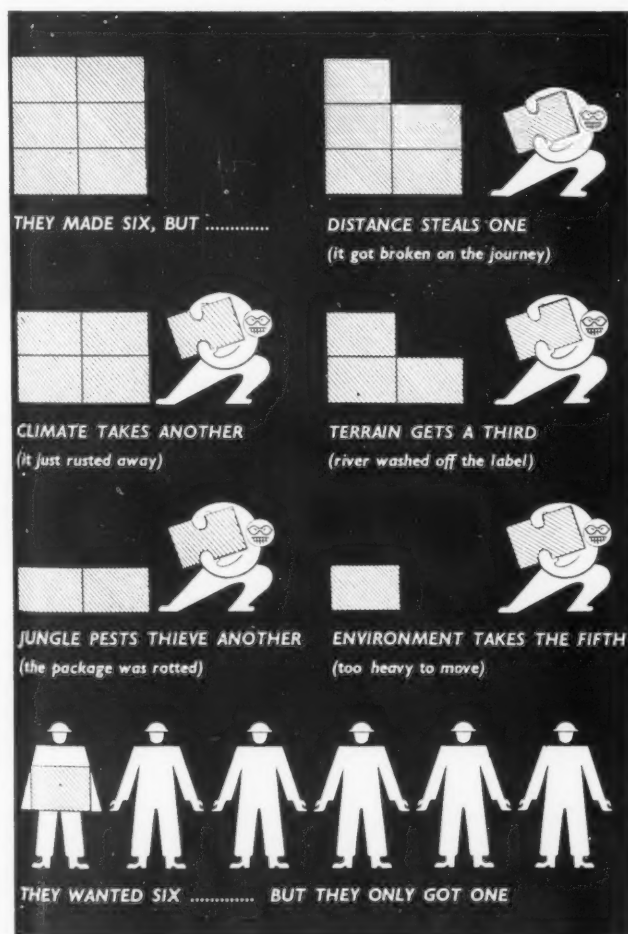
The many interesting examples of American tropical packs at the Exhibition include some of the most recent which have been developed, and others which utilize new or specially made materials.

A complete field radio station (Figs. 2 & 3), built to drop into the standard 2½-ton American cargo truck, is in many respects the most elaborate pack at the exhibition. It is contained in a field case, with all openings taped. Padding of the corrugated paper type is applied outside the field case and held in position by transparent gummed tape.

The sealed moisture-vaporproof barrier around the field case consists of a special laminated cloth-paper-metal foil material, made up of scrim laminated to kraft paper, laminated to lead foil and coated with a greaseproof polyvinyl-butyl heat-sealing film. The field case is bolted to the

2—Largest of all Method II packs is complete field radio station, built to fit 2½ ton truck. Moisture-vapor barrier is laminated of scrim, kraft and lead foil, coated with polyvinyl butyl. **3—Interior is carefully wood-braced and contains sacks of silica gel totaling 400 lbs.** **4—Typical Method II pack of radial engine (left). Center, new re-usable crate which is knocked down and returned to factory.** **5—Graphic lesson in the necessity for tropic proofing is this page of booklet based on the exhibition.**

PHOTO 2, U. S. ARMY SIGNAL CORPS
PHOTOS 3, 4, AND 5, BRITISH INFORMATION SERVICES





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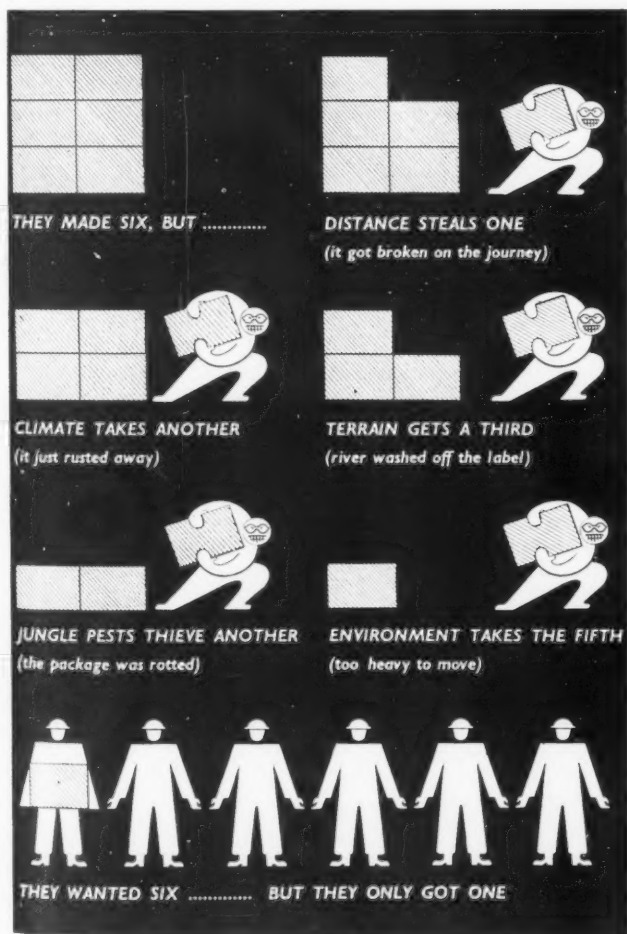
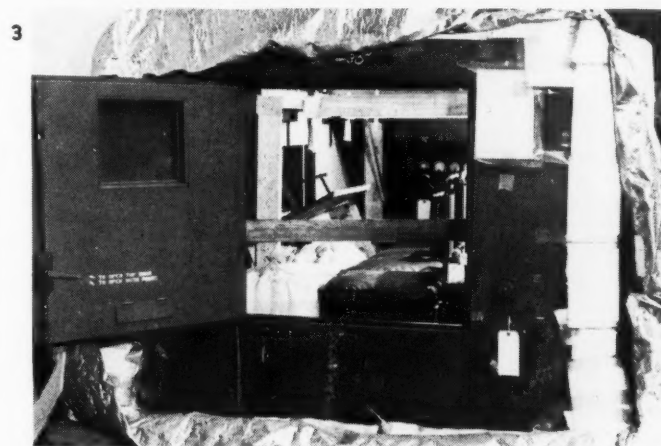
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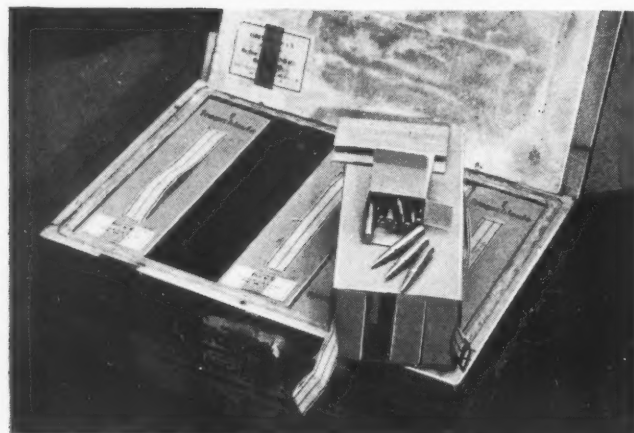
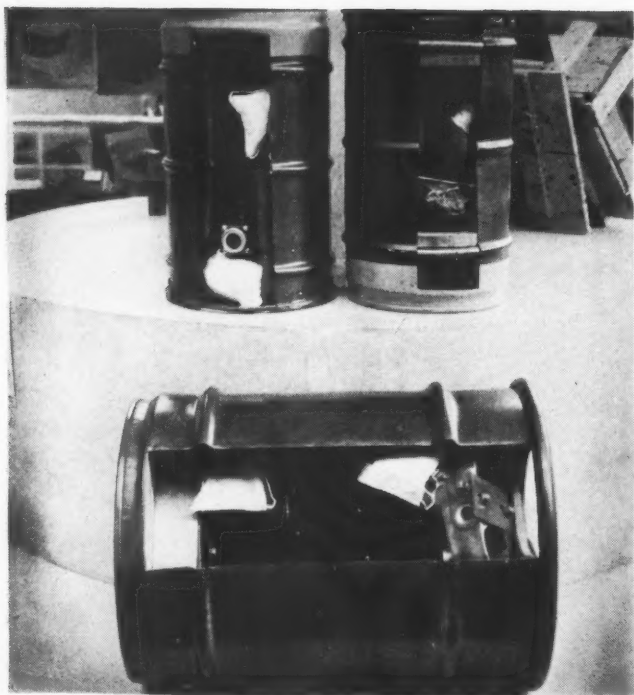
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PHOTO 2, U. S. ARMY SIGNAL CORPS
PHOTOS 3, 4, AND 5, BRITISH INFORMATION SERVICES





outer skidded shipping crate which is lined with water-proof bitumenized paper.

The interior of the field case, containing the radio equipment, is braced with wooden supports to prevent movement, and is provided with 400 lbs. of silica-gel dehydrant to absorb any moisture penetration. When stripped, this pack is ready for immediate use and requires no cleaning, as no preservative has been applied to the contents.

One of the latest types of Method II packs is that used for the calibre .50 machine gun. The machine gun is prepared with light corrosion preventives and lubricated where necessary on working faces. The barrel is enclosed in a cylinder of desiccant (silica-gel), wrapped in stockinette, followed by a double sleeve of polyvinylidene chloride sealed with lead placed in another stockinette wrapper and laid on a shaped wooden cradle which slides into the outer veneer panel box. This pack uses the dehydrant to smooth out the contour of the gun, and thereby greatly reduces the air space between the barrier and the contents—the ideal in Method II packs. The machine gun can be taken out of its pack and put into use without further preparation or cleaning.

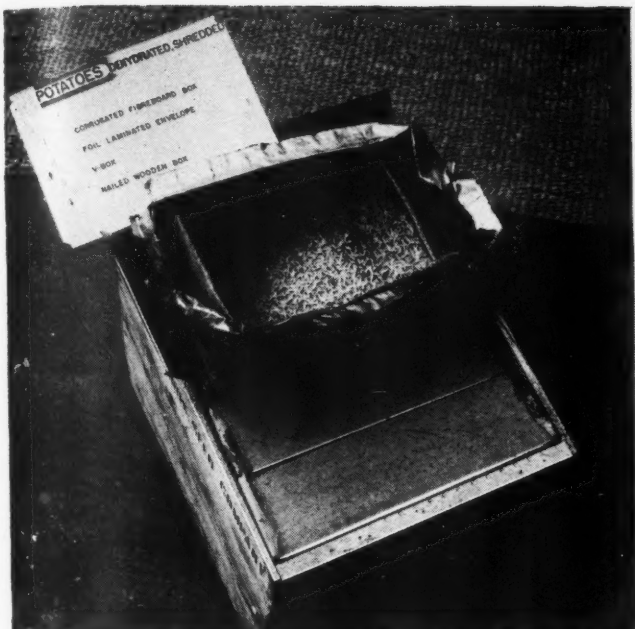
A totally different type of Method II pack is that used for a radial engine assembly (Fig. 4). This consists, as do all Method II packs, of a water- and moisture-vaporproof barrier, sealed, with a dehydrant inside to absorb any moisture-vapor penetration. The engine is treated, where possible, with light preservatives, and working parts are lubricated. The water-moisture-vaporproof barrier of a transparent pliable rubber hydrochloride film, is pierced for bolt holes and laid over the base member of a re-usable shipping crate. The engine is then dropped on to the case and bolted through skids underneath, the bolt apertures being sealed inside and outside the rubber film by self-adhesive fibre gaskets. All openings in the engine assembly are sealed, either with gaskets or tubes of silica-gel dehydrant. After bolting, the dehydrant is placed in position, the whole assembly is wrapped with creped paper and the rubber hydrochloride film drawn up and heat sealed at the top, with a rubberized tape sealing reinforcement. The bag is deflated before the final few inches are sealed.

A drift meter, another Method II pack, is cradled in a field case of timber, with spring suspension shock absorbers. Critical and working surfaces of the drift meter are completely enclosed in a water- and moisture-vaporproof transparent plastic film, (polyvinylidene chloride) padded outside where necessary. Inside the sealed envelope, silica-gel desiccants absorb any penetration of moisture.

Among the newest types of Method II packs are hermetically sealed metal containers (Fig. 6). The interiors of these are fitted with wooden supports to prevent movement of the contents. Cushioning takes the form of molded pulp or felt cylinders. Before sealing, silica-gel dehydrants are placed inside, and the top and bottom lids are sealed with rubber

PHOTOS, BRITISH INFORMATION SERVICES

6—Hermetically sealed metal containers with moulded pulp or felt dunnage and silica gel dehydrant are the newest type of moisture-vapor barrier. These packs are sometimes known as Method III. 7—German small-arms ammunition pack. Wood box is metal lined and sealed by soldering. Cartons are provided with web straps for quick removal from case. 8—British jungle ration pack puts all items inside hermetically sealed metal master container, two of which fit into a wooden case. Each of these wooden cases feeds sixteen men for one day.



9

gaskets. Three examples of this type of pack are shown in our illustration cutaway to reveal the contents.

In the Method I-A category of packs are several of comparatively recent development. A cam shaft is covered with a coating of ethyl cellulose about $\frac{3}{16}$ in. thick and is enclosed in a fibreboard box which, with other similar cam shafts, is placed in a bitumenized sealed bag liner and dropped into a wooden box for shipment. The features of the pack are that the ethyl cellulose serves (1) as a complete corrosion preventive, sealing off the cam shaft entirely from moisture-vapor and water; (2) acts as a cushioning medium; (3) exudes an oil film over the cam shaft which need not be removed before the cam shaft comes into use; and (4) is easily removable, being stripped by slitting with a sharp instrument and peeling off.

The sniper rifle is one of the three types of rifle packs demonstrating the progress constantly being made in preservation and packaging methods.

The old type of rifle preservation consisted of a thick smearing of heavy grease. This was objectionable for many reasons and was abandoned. It was succeeded by a light oil preventive treatment, and the rifle enclosed in a wax impregnated greaseproof envelope. This pack proved to be unsuitable owing to a failure of the envelope, and was succeeded in turn by a light oil treatment, a greaseproof wrapper and enclosure in a carton with an impregnated scrim-backed greaseproof wrapper, dipped in micro-crystalline wax.

Experience with this pack soon showed that it was again unsuitable owing to the possi- (Continued on page 148)

PHOTO 9, U. S. ARMY SIGNAL CORPS
PHOTOS 10, 11 AND 12, BRITISH INFORMATION SERVICES

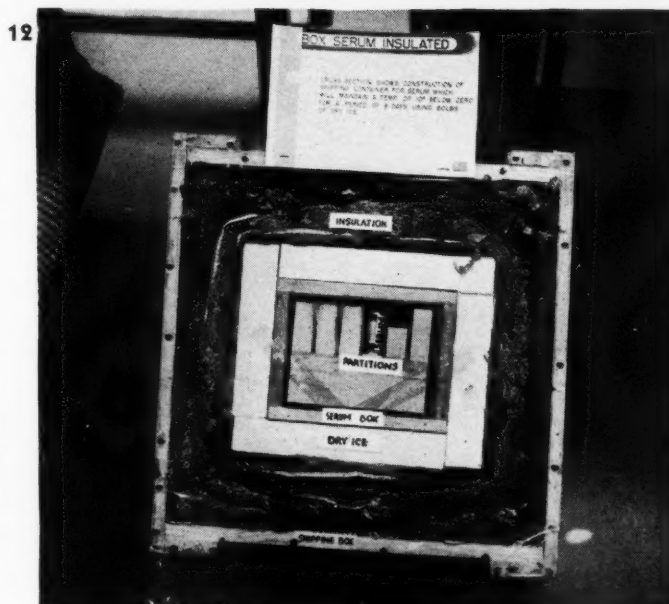
- 9—Dehydrated potatoes in corrugated box inside foil laminated envelope inside V-box inside nailed wooden box. 10—British invasion ration (Western Hemisphere), corresponds to C ration. Case feeds 14 men one day. 11—British experimental tropical pack for radios encased in aluminum foil, laminated bitumen and kraft, sealed with bitumenized cotton tape and Duroflex; outer cover is bitumenized felt on scrim, sealed with the tape and Bostik. 12—American shipping container for serum stays at 10 deg. below 0 for 9 days using 60 lbs. of dry ice.



10



11



12

Teamwork . . . how it produced the "perfect" package

This is a story of the evolution of a package resulting from research and experiment extending over a period of nearly a decade and involving just about everything that can enter into a specific packaging problem.

Before it was answered, at least four concerns had contributed their full knowledge and experience to the solution of the multiplicity of problems which had to be solved.

Back in 1935, before the era of shortages brought on by the war, the Kraft Cheese Co. began its intensive search for the perfect cheese package. The wrappers in use at that time and for the previous 15 years were doing a fairly satisfactory job but, despite many improvements, still were deficient because of several minor but inherent limitations. Over a period of years, several attempts were made to correct these limitations by changes in specification and composition and by the use of various types of coatings; but none of these attempts completely filled the bill. Accordingly, an entirely new type of wrapper was sought.

In the Kraft organization, a committee is responsible for package development. This insures proper consideration of all aspects of packaging, for the committee represents production, sales, advertising and merchandising departments. For this particular project, the starting point for this group was an analysis of the hazards to which the product is subjected. These may be summarized briefly: shrinkage, drying out, discoloration and susceptibility to mold. Those who think that package problems consist merely of matters of external appearance and design would quickly change their minds after considering the requirements which a cheese wrapper must meet.

Any "bill of specifications" which meets a real situation is evolved from a combination of practical experience plus research plus experiment. In this case the Kraft people had not only their own organization to draw on, but took full advantage of the research findings and experimental work of a company which already had a considerable background of experience with rubber wax compositions for coatings, laminations and self-sustaining sheets, as well as a record of service in packaging a variety of food products.

In logical sequence came a period devoted to cooperative experimentation, out of which resulted two things: First, a very definite set of specifications, and second, a series of controlled market tests in which were used several different grades and combinations of paper and cellophane. Careful checking of dealer and consumer experience with these various types of wrappers resulted in the final selection of a coated cellophane sheet as the most desirable package material from the viewpoint of merchandising as well as from the technical and production angles.

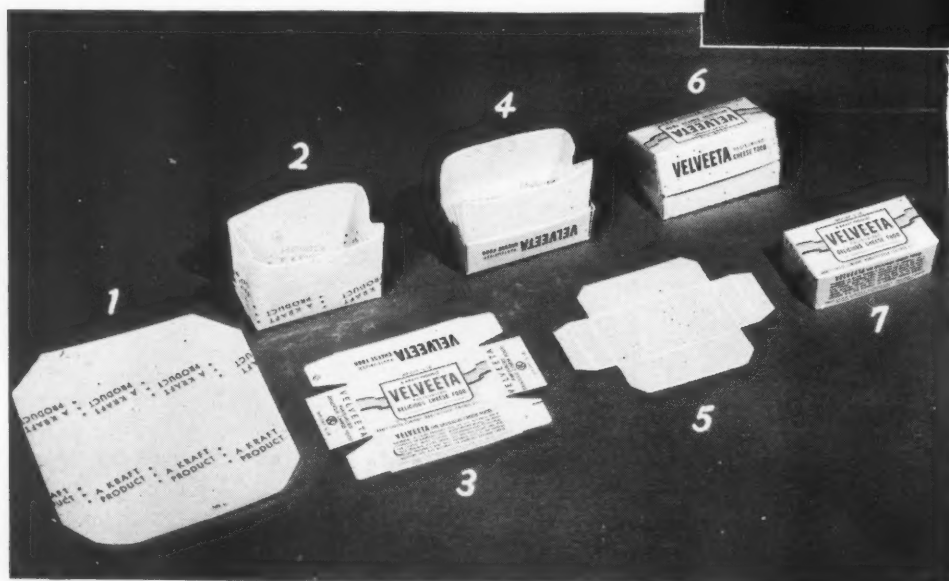
For packaging of cheese, wrappers may be divided into various classes suitable for the variety and type of cheese for which they are intended. The inventory life of cheese products varies widely from the highly perishable Philadelphia Brand Cream Cheese, which must be sold in a few days, to the longer shelf life of cheeses like pasteurized processed cheddar cheese, with such varieties as limburger, Camembert, brick, bleu, etc., occupying intermediate positions.

Wrappers for all classes of cheese would be required, ideally, to meet the following qualifications:

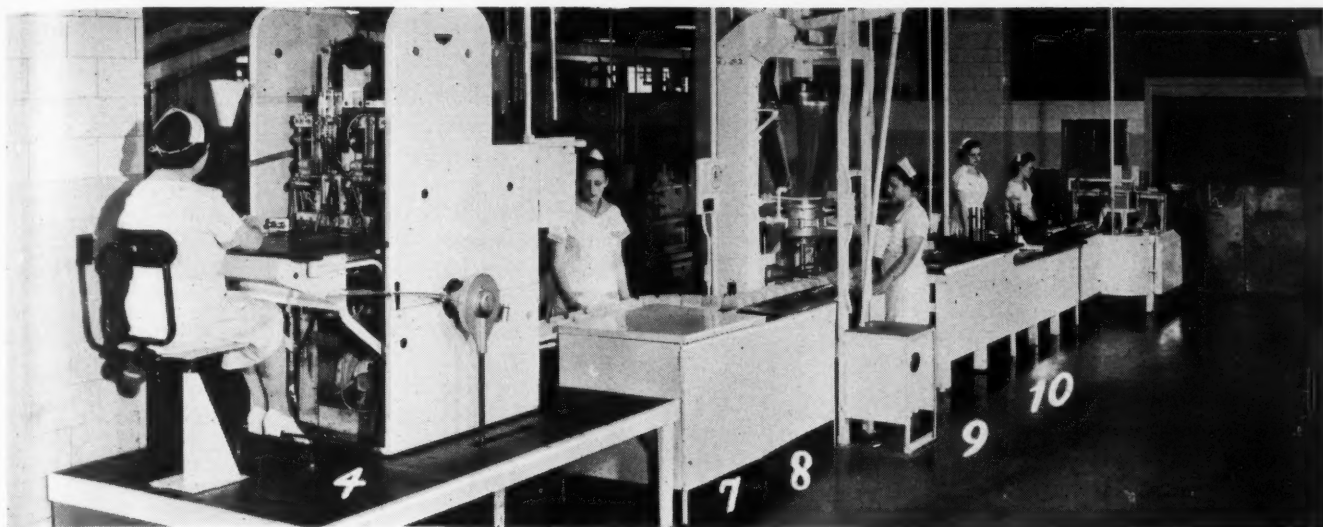
1. They must not impart any objectionable flavors to the surface of the cheese, nor can they contribute to the development of objectionable surface odors or flavors.
2. They must peel freely from the cheese.
3. They must, of course, be completely non-toxic.
4. They must be manufactured from available materials.



1



- 1—New Kraft Cheese package is attractive, functionally sound.
- 2—Package is formed progressively: flat bag sheet (1) is formed (2) and heat sealed on mandrel. Carton top blank (3) is formed around bag (4) and filled. Bottom blank (5) is formed and inserted (6) to make package (7).



3—View of typical packaging line in Kraft plant. Numbers identify some of operations shown in following close-ups, correspondingly numbered. 4—Feeding printed, die-cut flat sheets of coated cellophane into bag forming machine.

5. The wrappers should have moistureproof qualities.
6. They must undergo refrigeration without cracking or chipping.
7. The coating of these wrappers must have a high degree of film strength, sufficient to make sure that the coating can be peeled from the cheese even though it separates from the base material of the wrapper at low temperatures.
8. They must have physical properties which assure successful mechanical handling in high-speed automatic equipment.

As if the foregoing were not enough, certain additional qualifications were prescribed for wrappers for such cheeses as pasturized processed American, pimento, Swiss and brick. It is the wrappers for these kinds with which this article is chiefly concerned. Principal requirement is that the wrapper must be capable of receiving the pasteurized cheese at a high temperature and—without destroying or reducing its protective properties—permit the cheese to cool in a certain required time. These particular varieties, of course, are in direct contact with the protective wrapper. Other requirements follow:

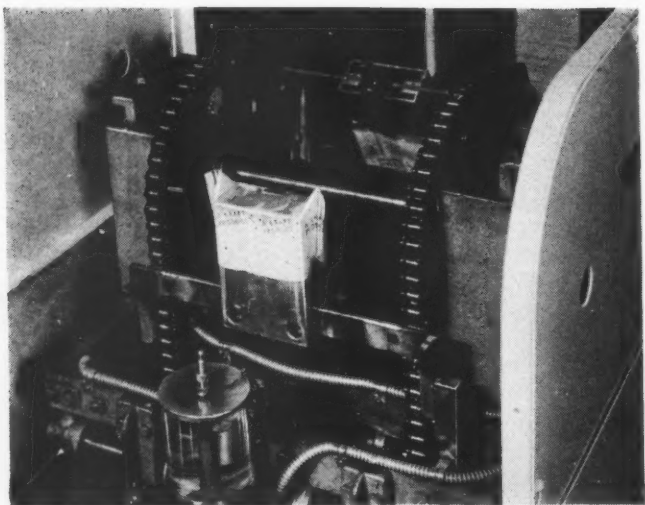
1. The wrapper must be capable of being made into a pouch, with a heat or pressure seal.
2. If the material is coated, the coating substance must not flow at the high temperatures required for processing the product.
3. The adhesion must be sufficient to resist loosening during ordinary commercial handling.
4. For the convenience of the housewife, or the food store clerk, the wrapper must not interfere with easy slicing of the product.
5. Finally, the wrapper must be moistureproof, capable of meeting a certain prescribed standard.

The foregoing list of points is not, strictly speaking, altogether the outcome of the experimental work undertaken for this specific project alone. As a matter of fact, the principal points included above are also to be found, in a some-



what different form, in the specifications released by the Wrapper Committee of the National Cheese Institute during the critical days immediately following Pearl Harbor. At that time, in anticipation of packaging difficulties that would naturally accompany a world-wide upheaval, the dairy producers pooled their experience and information as a measure of meeting the emergency. As a result, probably for the first time, some of the factors involved in wrappers of this type were committed to paper and made public for the benefit of all producers and consumers. Incorporated in this pooled information, of course, were the results of the long period of experimentation pioneered by the Kraft organization and its suppliers.

Undaunted by this rather staggering bill of specifications, the supplier who developed the wrapper which was finally selected started experimentation and eventually evolved a special-coated sheet which met all the requirements—the outcome of long continued work with many types of coating compositions, accompanied by carefully controlled labora-



5

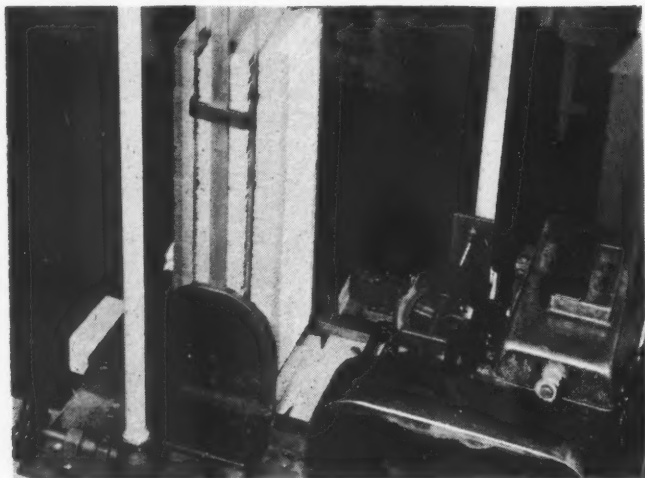
tory tests. The resulting coated material is completely heat-sealing.

Interestingly enough, this film is opaque when in the sheet, but the action of the melted cheese, after the bag is formed and filled, renders it completely transparent. The result is that the appetizing color of the cheese is perfectly visible through the wrapper. The wrapper adheres tightly to the cheese, retaining the moisture content and preventing drying out. The coating material causes no discoloration whatever and has proved impervious to mold and shrinkage.

Once the inner bag was evolved, the next step was to perfect a two-piece carton. This, however, went hand in hand with the evolution of automatic machinery, for these packages must go through the production line at a high rate of speed if the advantages of low-cost mass production are to be passed on to the consumer.

Here again, as in the case of the wrapper, the Kraft packaging committee began with a bill of requirements. The machinery, it was decided, had to perform the following operations: (1) form the inner bag and prepare it to be filled; (2) form the carton to encase the inner bag; (3) fill the inner bag with the melted cheese; (4) form a complete seal on the bag; (5) encase bag in top and bottom of carton; (6) convey the small units to the bundler which wraps six in a bundle.

A survey of the field proved that it was impossible to locate



6

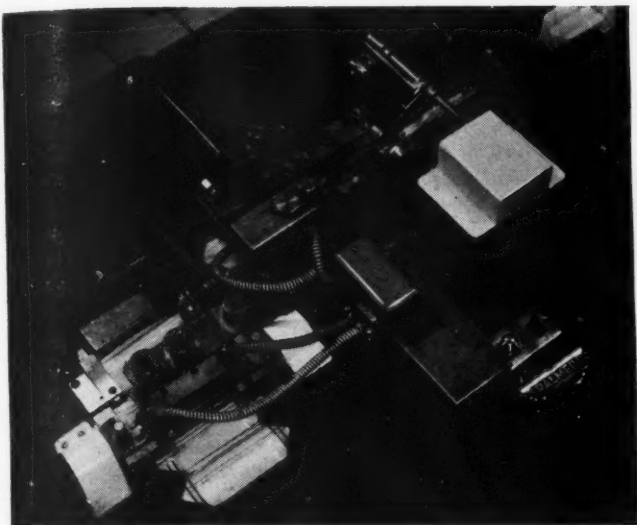
5—Close-up of formed bags on mandrels. 6—Top portion of carton is fed from a magazine into the machine to be formed and engaged with the completed bag. 7—Carton top containing the bag is disengaged from mandrel and delivered to filler conveyor. 8—Filling unit, showing 2-lb. boxes containing the formed bags moving left to right as they are filled with hot cheese from the pasteurizer.



7



8



any existing equipment of the kind needed. There just weren't any such machines and there didn't seem to be any that could be adapted for the purposes.

In telling the story one of the Kraft officials says, "At this point I found it pays to go to church." He and his wife got acquainted with a new family in their church community. As an outcome of a casual call, the male member of the newcomer's family undertook the development of the packaging machinery which today is functioning in several of the Kraft plants.

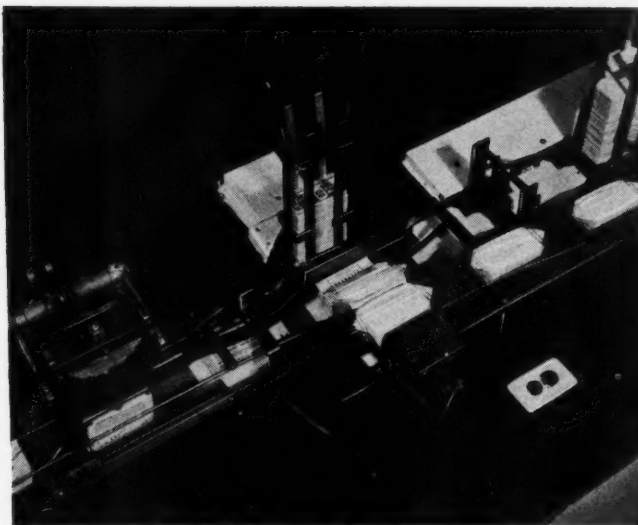
The machine line as finally evolved begins with the forming of the inner bag. For all sizes, the wrapper material is fed into the bag-forming unit from flat, die-cut sheets. The bag is formed on a mandrel, with heat-sealing of the sides by rollers on the half-pound size, and by moving pressure segments on the two and five-pound sizes. The top portion of the half-pound carton blank is fed in and is formed around the bag still on the mandrel. Then the bag within the box travels on to the filling station where the hot, pasteurized cheese is fed in by volumetric filling. From the filling station it passes on to the top sealer where a heat sealing operation takes place, closing the top of the bag; then a pressure is applied which removes excess air from the inside of the bag, smoothing it down flat on top of the cheese, which is still warm. The triangular ears at ends of the top are then given final heat-seal. The action of the heat makes the coating adhere snugly to the cheese, although it peels off easily later on. At the same time, it acquires the transparent quality which is so desirable.

Meanwhile, a blank for the bottom portion of the carton has been fed into another part of the equipment and carried to what the Kraft people call the "turnover" machine. This blank is die cut, with no glue joints, and the construction eliminates the operation of setting up a bottom to the carton. Another advantage of this construction is that the bottom blank functions as a cutting board for the consumer when the cover is removed. It is open at the corners and the folds are scored and perforated, so that it readily drops back to a flat sheet when the top is removed.

Very ingeniously the "turnover" machine takes the top part of the carton, containing the bag with warm cheese in it, and turns it over in such a manner that the bottom part or cutting board—now formed and ready—fits up snugly inside of the top, its walls coming between the bag and the box top.

Somewhere along the line, this amazing machine also has taken advantage of an opportunity to put into the container

10



11



9—Filled packages moving right to left as bag flaps are brought together, heat-sealed, folded down and ears heat-sealed. **10—**Closure unit, showing at right magazine containing blanks of carton bottom. Product moving on separate conveyor is tipped over onto carton bottom. Together they move into closure unit which engages top and bottom, thus forming completed package. **11—**When top is removed by consumer, sides of carton bottom drop down, suggesting ease with which cheese may be sliced.

a package insert, which the consumer finds on removing the top half of the carton. The cooling action of the cheese serves to make the contents tighten up within the box, and the result is a firm, solid package.

The handling of the 2-lb. package is similar. The machine which forms the inner bag, however, somewhat resembles a merry-go-round with four horses. As a matter of fact the organization which perfected these machines doesn't care whether its devices remind the observer of Rube Goldberg's contraptions or not. They appear not to be bound at all by any hide-bound traditions of engineering precisionists—they simply apply a common-sense ingenuity that results in getting the packages properly formed and filled. One's first impulse on seeing this "merry-go-round" may be to chuckle, but that soon gives way to a wholesome respect for the way in which it keeps going, forming bags and placing them into cartons in readiness to be filled with hot cheese.

The filling device, as already (Continued on page 154)



Color code wraps

Difficulty encountered in obtaining a supply of folding cartons is an old, old story in this day of paper shortages. The Medix Ampul Service of Philadelphia found a solution to this difficulty and improved the package for its products at the same time.

After trying several ideas, the company decided upon a simple paper wrap imprinted all over with the Medix trademark and sealed with sealing wax. Instead of the former individual carton for each bottle, all bottles are wrapped in the same material and the correct label affixed to each. In order to improve the convenience features of the package, Medix decided to inaugurate a color code system for the various drugs put up this way. Colors sufficiently different were selected so the physician can readily recognize and become familiar with each one.

The bottles are sterilized and filled automatically and then wrapped and labeled by hand. No cellophane outerwrap is used at present but quite possibly after the war emergency a wrap of this type will be adopted.

The wrapped bottles are sent to the physician or to the pharmacy in set-up boxes, packed three, six or twelve to the box.

Medix is quite proud of the job done on these packages. Comments from customers approve the modern design as well as the completely ethical appearance of the new wraps.

Credit: Labels, David Heston & Sons Co., Philadelphia. Wrap, Gothic Press, Philadelphia. Caps, Tompkins Rubber Co., Conshohocken, Pa.

DESIGN



Designs on wine

A wicker covered demijohn has been selected by Julius Wile Sons and Co., Inc., as the large size container for its fine line of imported wines. The giant bottle holds two gallons, two quarts and 12 fluid ounces or 13 times the amount in the regular fifth.

After selecting the wicker covering for the demijohn, Julius Wile discovered that a label problem presented itself. It was necessary to retain a family resemblance between the two sizes; all necessary information had to be prominently displayed. In addition, the label had to be of a fairly permanent construction and fastened securely to the wicker.

The entire problem was answered by the simple expedient of enclosing the same label as is used on the fifths between two laminated pieces of cellulose acetate. The sheet used behind the label is embossed to give the whole a translucent look while the front is transparent. Four little holes, one at each corner, serve to tie the label in place. Red or green tasseled cords are used for the top of the label for their decorative effect while the bottom is secured simply with string.

These sheets of cellulose acetate are trimmings and scraps from large sheets used for covering military maps; otherwise, of course, the material would not be available for this purpose.

Two other labels are used for these jugs besides the black, red and white one for Robertson's port shown in the illustration. Wine, black and white is used for Williams and Humbert Cedro Sherry and green, black and white for Williams and Humbert Maduro Sherry.

Credit: Cellulose acetate lamination, Glassoloid Mfg. Co., New York. Cords, Schoen Trimming & Cord Co., Inc., New York.

Dispenser-container

A completely functional, re-use wall dispenser has been designed for these Kleenway garbage and general utility bags by the Oneida Paper Products, Inc., New York City.

Twenty-five large, white heavy-duty treated bags are packed in a break-down-the-middle folding carton printed so that the opened wall dispenser shows only the attractive blue, yellow and red plaid when hung in the kitchen or bathroom. The scoring is so arranged that when the box is opened the punch-out hanging flap is doubled over, forming a much stronger tab.

The back of the carton illustrates the proper way to open the pack by means of four simple line drawings showing the four steps. Along the narrow side of the container are small spots giving suggested uses for the bags while the upper part of the face which folds against the wall is taken up with trademark and sell copy.

The bags themselves are 8 by 6 by 14½ in. and are designed to fit 10, 12 and 14-in. cans. Twelve cartons of 25 bags each are packed to a shipping case.

The manufacturer expects this handy home package to be a big postwar seller but at the present time, due to the paper shortage, only orders from established customers are being filled. Future merchandising plans, however, include sales in grocery stores, variety stores, drug stores and similar outlets. The unit should supply a long-time need for disposable containers in the home.

Credit: Carton and bags, Oneida Paper Products, Inc., New York.



HISTORIES

Plastic-dipped tools

Convenience in ordering, shipping and storing; protection and positive identification are just some of the benefits gained by Carboly Co.'s "standard packaging" program under which tools and tips are now carried in stock prepacks ready for shipment in various quantities instead of being packaged as needed when the order is received. The quantities of tools or blanks per package have been selected according to the quantities or multiples of quantities of each item most frequently purchased.

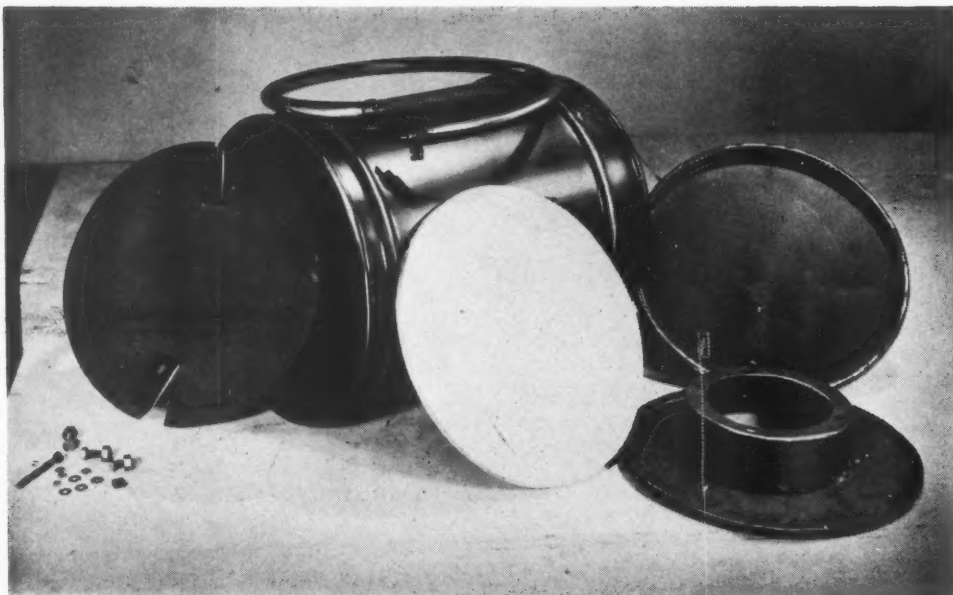
In order to keep the cutting tips of all the standard tools in prime condition and free from corrosion while on the shelves they are dipped in a hot plastic melt—one of the first civilian applications of this wartime development. (See MODERN PACKAGING, Feb. 1944, p. 64.) The melt forms an airtight seal over the delicate edge and can be removed by merely slitting with a knife and peeling off.

Boxes are made of heavy cardboard, treated to increase resistance to oil, water and water-vapor, and are reinforced by metallic stapling on the vertical edges. The containers thus provide ample protection against accidental dropping or mishandling during shipping and storage.

Box design is arranged so that name Carboly may be read right-side up no matter how box is stacked. Positive identification of tools and blanks in the containers is provided through the use of different colored labels. In addition, each label carries complete information as to size and type of tool, number of pieces in the box and other pertinent information necessary.

Credit: Boxes, National Metal Edge Box Co. Philadelphia. Plastic dip, Seibert Varnish Co., Detroit, Mich.





AIR TECHNICAL SERVICE COMMAND PHOTOS

1—"Canning" an airplane engine cylinder for air shipment to the South Pacific (Method III) calls for these materials. 2—As the first step in canning, cylinder is bolted to steel plate which forms false bottom for steel can. 3—Second step in the AAF technique is addition of false top for added protection of the costly engine part.

New techniques for air-cargo packaging

by Major D. L. Batten*

Before the war, the American consumer was accustomed to buying many things in cans—from beer to tennis balls. But as a result of new packaging techniques developed by the Army Air Forces to meet the exigencies of wartime aerial shipping, the use of canning may extend into completely new fields.

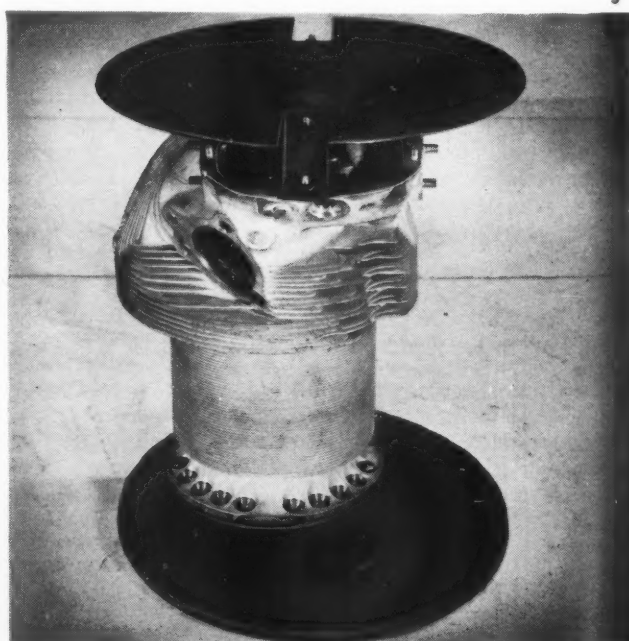
The AAF is now canning for shipment to the South Pacific a wide variety of items which were formerly packed in moisture-resistant flexible materials and wooden crates. Starters, generators, instruments and cylinders are among the items

* Packaging Co-Ordinator, Air Technical Service Command, Wright Field, Dayton, Ohio.

now packed with desiccants in hermetically sealed, re-usable and re-sealable steel cans and drums for shipment and storage to hot and humid climates in the Pacific. Experiments indicate that we soon will be able to ship entire engines in such containers.

The process, developed by the Air Technical Service Command, with headquarters at Wright Field, Dayton, Ohio—the AAF branch responsible for the engineering, procurement, supply and maintenance of all Army aircraft—is regarded as superior to former methods.

The steel can or drum in which AAF items are packed acts



simultaneously as a unit container, a shipping container and a moisture barrier. Previously such items were wrapped in pliofilm or some other moisture barrier with desiccant included, and then packed in wooden boxes or crates. The new container fully packed frequently weighs less than the completely packed wooden container with its inside moisture-proof material, and offers superior protection.

Furthermore, the steel can method is cheaper than the use of moisture-repellent materials and wooden boxes. For example, the moistureproof wrapping and wooden crating for an engine cylinder costs at least \$4, whereas packing of the same item in a steel drum totals about \$2.50. The new method of packing a starter saves approximately \$1.50 over the old, less-acceptable method. Generally speaking, the saving resulting from the use of cans is about 25%.

The steel can method was born out of a need for more effective protective packaging plus a shortage of rubber used in the manufacture of pliofilm—widely used as a moisture barrier—and a scarcity of silica gel, the dehydrating agent which is used in all packages where protection against dampness is important. Silica gel is placed inside the pliofilm wrapping, but it has been found that, due to leakage, three times as much of the dehydrant is used with pliofilm as is needed for moisture protection in the airtight steel containers.

The packing of a cylinder for an airplane engine illustrates the steel drum method. The cylinder is mounted on a disc which forms a false bottom of the drum; a second disc is attached to the top of the cylinder, which is then placed inside a drum 30 in. high and 20 in. wide. Hermetically sealed, the drum will protect its contents against physical breakage, dust, moisture and other damage, for shipment by sea or air and for storage or transshipment at the receiving point.¹

The steel can or drum for airplane parts is only one of many new developments in packaging evolved or contributed to by the Air Technical Service Command.

¹ This is similar to the method which is becoming known in other branches of the Service as Method III—ED.

The major problem to be overcome in air shipping is weight. Every ounce of weight carried in the form of packaging is an ounce less of urgently needed war materials which can be transported to the combat fronts. But reduction in weight must be accomplished without loss of protection from the elements—including high altitudes, humidity and dust—and from damage in shipping and handling.

Humidity is the bugaboo of virtually all AAF shipments to Pacific bases, usually located in tropically damp climates. It causes corrosion, rust and malfunctioning of equipment. It also causes deterioration of packaging, leaving delicate instruments and other airplane accessories and parts subject to irreparable damage in loading, transportation and unloading.

Because of the urgent need for protection against this menace to our supply lines, and because of the comparative inefficiency of ordinary methods, ATSC engineers have sought to develop new techniques which will insure shipments against harm without increasing weight or cost, and, wherever possible, with less weight and cost.

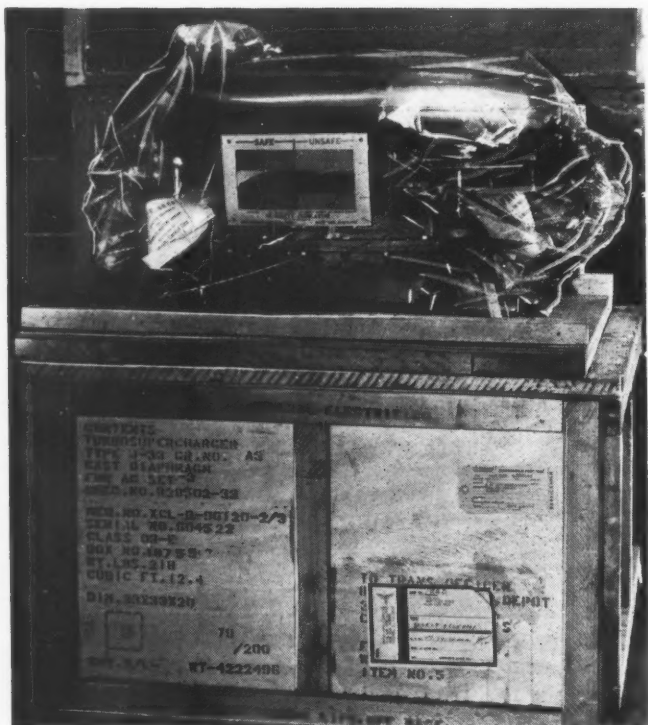
One of the simplest and cheapest, yet very effective, methods of moistureproofing packaged equipment is of course the dipping of the package in a hot solution of beeswax and carnauba South American vegetable wax. This is done after all edges have been taped up, to prevent the liquid wax from seeping into the container. This method renders an ordinary cardboard box almost impervious to moisture.

Two new types of packaging board have been developed. One is the well-known V-board, used in boxing weights up to 70 lbs. with total dimensions not exceeding 70 in. It is made of laminated fibre impregnated with synthetic resins. Such boxes are lightweight, inexpensive, almost as strong as wood and, more important, hold their strength when wet.

Another type of fibre box is a four-ply laminated asphalt kraft, used for small packages weighing no more than 15 lbs. It has been nicknamed by the AAF Junior V-Board, and while not as strong as V-board, it is moisture protective, and

4—Third step: With top and bottom securely attached the cylinder is inserted in steel drum. Silica gel is in place. 5—Fourth step: Wooden disc is placed on top. Function of disc is to prevent movement of cylinder inside can. 6—Fifth and final step: Steel lid is attached and steel rim drawn tight to provide hermetic seal.





its lack of rigidity gives it a slight cushioning effect, protecting its contents from damage by falls and blows. It is used with a four-sided liner of the same material, which, with overlapping flaps top and bottom, affords two-thickness protection all around the contents.

Where V-board is not available, a method of waterproofing ordinary corrugated cardboard boxes has been developed. The box is coated with a special lacquer which renders it impervious to water.

Today, the AAF is shipping almost anything by air—from a carburetor spring which is less than half an inch long to a five-ton cargo lift. And new packaging and tie-down techniques have made such shipments possible.

Limitations of weight and space are in reverse order in air cargo. Whereas in water or rail shipment cargo space is the predominant factor and weight of relatively less importance, in the airplane it is weight rather than space that determines how much can be carried. Many a cargo plane goes out with considerable empty space in its cabin because it has reached its weight limit. About 70% of the time, in air shipment, the weight limit is reached before the space limit.

Thus, it is necessary for the AAF to do everything possible to cut weight without sacrificing strength, and the biggest opportunity for saving is in the container and packing materials. Items received by rail in regular export crates scheduled for reshipment by air are repacked in lighter containers or wrappings, and an average weight reduction in shipments of between 30 and 40% is thus achieved. It is felt that much of this repacking will be obviated through proper instruction when the Air Cargo Packaging Manual, now under preparation by the ATSC, is completed.

Ordinary export boxes are made of solid wood $\frac{3}{4}$ in. or 1 in. thick. For air shipment, containers made of wood-framed $\frac{3}{16}$ -in. plywood panels are favored. The ATSC is experimenting with a $\frac{1}{16}$ -in. fibreboard made of wood pulp impregnated with resin, which is so strong that a man can jump on a small box made of it without breaking it.

Airplane engines are packed in heavy wooden boxes for export shipment by surface ship. When an engine is diverted to air shipment, the wood is stripped off entirely, the engine is fastened down to a dolly or skid, sealed in a moistureproof bag of pliofilm, and it's ready to go, at an immense saving in weight.

The plywood box in some cases gives way to an even lighter container. In normal times when rubber moved by boat to this country from the Far East it was packed in plywood boxes. Now Brazilian rubber is shipped by plane in jute bags, effecting a substantial saving and providing all the protection that is necessary.

High altitudes encountered on the "hump" route from India into China—the sole means of getting supplies to our embattled airmen in China—have posed unique packaging problems. Flying at from 18,000 to 20,000 ft. over the Himalayas causes containers to expand and break unless unusual precautions are taken.

Sulphuric acid for batteries is (Continued on page 152)

7—Excellent example of Method II in air cargo is this turbo-supercharger, fastened to a skid and shipped without the heavy box. 8—Some idea of the monetary value of air cargo is given by this display of cartons which have been coated with a special lacquer impervious to water penetration. 9—The double-dip method of wax-coating cartons is commonly used by the AAF for moisture-proofing.

1—Pan full of spinach packages going into the freezer compartment for the quick-freezing operation at one of the Birds-Eye Snider Division plants of General Foods Corp.



Postwar in foods . . . processing and packaging

by G. J. Hucker*

The future of food packaging will depend, in large part, upon what may be anticipated in postwar processing of foods. A knowledge of probable trends in food preservation as well as consumer demands is essential before the future of food packaging can be considered.

In only a few instances, notably in the case of metal containers, have packaging engineers and manufacturers of materials tempered their thinking with basic knowledge of the principles involved in the storage and preservation of foods. Packaging is part of the process of food preservation. As a unit process, packaging problems must be approached from the standpoint of food requirements as well as packaging methods and materials.

At the present time the major part of our food is preserved by heat (canning), freezing, drying or storage at low temperatures.

Canning. The canning industry in the immediate future will obviously be concerned only with metal and glass containers. Nothing has appeared on the horizon other than metal or glass which allows for the necessary heating after packaging. While high-frequency sterilization may offer limited possibilities for other materials, there is, at present, no assurance of success. The canning industry, to which the public owes so much, is probably due for a large postwar development. To achieve its greatest growth, more consideration must be given to improvement of quality. The general public is aware more than ever before of what can be attained in quality through home canning and freezing. Keeping quality alone will not be sufficient to enable the canning industry to meet all competition.

Improved palatability is, also, of utmost importance. Freezing, for example, has probably introduced the city

consumer to the flavors of many fresh vegetables, particularly peas and corn, and it is doubtful if "canned peas," a product entirely apart from the fresh garden pea, will compete successfully in the future unless canners can retain some of the qualities of fresh peas. A similar condition is true for many fruits. Heat processed peaches and certain berries, although pleasing and palatable, have little in common with the fresh fruit flavors.

Although not packaging problems, these developments should concern the packaging engineers, as the palatability of processed foods will influence, to a greater degree than ever before, the trends in preserved food consumption after the war.

Dehydration. War requirements made dehydration an important food preservation industry. Whether this rapid expansion will continue on the same scale afterwards is a controversial subject. Come peace, dehydration must enter into direct competition with canning and freezing in so far as keeping quality, palatability and nutritive values are concerned. It is unlikely that any great development in this field can be anticipated which would seriously threaten any expansion of the canning or freezing industry.

However, certain fruits and other products, such as soups, mashed potatoes, peas, sweet potatoes, relishes, and probably certain green leafy vegetables, may survive the wartime development. These products (along with certain specialty products) may have attained quality standards that are sufficiently high to compete successfully with other types of preserved foods. The dehydration industry must consider seriously the development and maintenance of high quality if the industry is to survive on any significant scale.

There are probably two phases of dehydrated foods development in which packaging may be concerned after the war:

* Secretary, Institute of Food Technologists.

i.e., bulk packages for institutional use and commercial units for general public distribution. In the bulk packaging of dehydrated vegetables and similar products, there may be opportunities for non-metal containers. In instances where vegetables, such as carrots and cabbage, must be stored in the absence of oxygen or in the presence of an inert gas, non-metal containers are not available now which can meet these requirements. In certain other types of bulk dehydrated vegetables, non-metal containers may prove to be satisfactory. This is a real possibility inasmuch as the packaging emergency has stimulated the development of a number of box-bag-box types of bulk containers which have proved satisfactory under a wide variety of adverse conditions.

Except in certain limited fields, the unit package of dehydrated food will probably receive some attention but no great development after the war. Dehydrated soups and certain specialized foods are now on the market, but it is doubtful that there will be any significant development in the unit packages.

The outlook is not too promising for a large development in the dehydration field after the war. It has been learned through experience that non-metal containers are satisfactory as packages for certain dehydrated foods and may be able to compete under certain conditions with metal containers in the bulk packaging of dehydrated fruits and vegetables. However, caution should be advised in thinking of the future in this field in light of emergency packaging problems. Specifications which have been required as essential for the Army may not be so essential when civilian commercial packaging is undertaken. For example, the Army obviously required as near the ultimate goal as possible in both waterproof and water-vapor protection. It may be that in postwar civilian commercial packaging of dehydrated fruits and vegetables even more stringent water-vapor protection will be required, while waterproofing will receive much less consideration.

Freezing. On every hand nearly unlimited discussions now are under way regarding the great future development of frozen foods. There are several approaches to packaging problems in this field depending primarily on the phases of the frozen food industry which experiences the greatest development. Certainly the freezing of foods either commercially or in the home is not destined to eclipse completely all other types of food preservation.

The most important lines of development in the freezing

of foods are proving to be locker plants, home freezers, home lockers and commercial freezing, both in bulk and unit packages. Probably in no other type of food processing will the non-metal container have as great an opportunity for development as in the frozen food field. The paper and allied industries, however, should be cautioned that developments in this field may not be in lines now receiving the greatest publicity and about which the most elaborate predictions are being made.

The locker plant development after the war may not be as great as many would have us believe. In the postwar period it may be that a housewife will not wish to drive several miles to a locker plant to obtain the daily or weekly supply of frozen foods. The attitude of the public toward the public locker may be somewhat altered when war conditions are removed.

Another anticipated development by many in the frozen-food industry is the possible explosive expansion in home freezing through the purchase of home freezers. Those who are giving the subject of the future of food processing serious thought should caution the packaging industry not to allow too great capital investments in that field until a postwar housewife reaction is available.

In the early days of home canning, great predictions were made, and it is true that over the years a small percentage of housewives continued to can foods. However, the great commercial canning industry has developed in spite of home canning. There may be developments in home freezers after the war, but the release from ration points and the food propaganda attendant upon the war effort, together with other interests which will develop, makes one hesitant to predict too great an expansion in this particular field of the frozen-food industry.

Closely allied to the development of the home freezer is the possible development of the home storage locker. The future for the home storage locker, used as a storage space for commercially packed frozen foods, appears to be much brighter than expansion of the home freezer. It is possible in the post-war period that many housewives will require a modified refrigerator or a small storage cabinet in which can be stored a reserve supply of frozen fruits, vegetables and meats in the same manner as she has maintained an emergency shelf for the unexpected guest or the extra supply of canned fruits and vegetables in the cellar.

As has been true in canning, probably the greatest expan-



2—The canning industry in the immediate future will obviously be concerned only with metal and glass containers—nothing else has appeared which will allow for the necessary heating.

sion in freezing will be in the field of commercially frozen food, a development which will probably come both in bulk and unit packages. The bulk freezing of fruits and certain vegetables will no doubt experience a considerable expansion. In so far as packaging problems are concerned in this special field, the specifications will probably favor metal containers, with non-metal having possibilities, as the bulk package of 30 to 50 lb. obviously can be more easily handled in metal. In addition, many fruits frozen in syrups contain in the bottom of the package a considerable amount of liquid syrup, and the leakage problem in non-metal containers is yet to be entirely solved. However, the bag-in-box type of container may have a chance of success in this field. If so, it must be leakproof after handling, at least in a 30-lb. package, and have sufficient ruggedness to withstand shipping.

Probably the greatest expansion in the food industry following the war, particularly as it pertains to fruits, vegetables and meats will be in the commercial-unit frozen package. The development over the past few years of handling refrigeration procedures for frozen foods has indicated that a frozen food unit package can now be delivered to the consumer with considerable ease. The only remaining link to make the chain complete is the home storage locker mentioned above. The packaging requirements for the commercial unit frozen package may be somewhat different from what is now anticipated. No doubt, protective wraps will be permissible which will allow much higher moisture-vapor transmission rates than heretofore anticipated. At the moment it is considered that 0.5 gram (Tappi method) is the maximum moisture-vapor transmission rate allowable when packaging in paper or allied materials to maintain fruits and vegetables in a satisfactory condition. It is altogether possible that postwar developments may allow a much higher moisture-vapor transmission rate and thus allow a wider latitude in developing other and essential specifications.

Packaging engineers who anticipate developing food packaging after the war should realize that requirements for the various packages of frozen food will be distinct to the type of market concerned. The bulk package must of necessity be rugged and serviceable with no special attempt for appeal. The home freezer and locker package or wrap, in addition to being effective, must be convenient to fill or wrap with possibly no special recommendation for heat or other type of closure except a fold. On the other hand, the commercial frozen package unit, in addition to being effective as a protective wrap, must have an attractive sales appeal and be adaptable to commercial closure procedures.

The question is being asked many times, "What have we learned in packaging during the war?" We are still aware that the metal container is the most acceptable package for processed foods. Great credit should be given the manufacturers of non-metal materials in meeting critical packaging emergencies. Great strides were made in the development of such materials and improving packaging methods. However great these advances, it must be accepted that in certain fields the metal container still dominates.

Another outgrowth of the war is the fact that protective bags and wraps have been developed which are satisfactory for frozen and dehydrated foods, even when these foods are handled or stored under a wide variety of adverse conditions. Whether these packages can compete with metal and glass following the war remains a problem.

Still another outgrowth of war packaging experiences has been a definite focusing of attention, particularly of the manufacturers of non-metal packages, upon the packaging

requirements of the food processing industry. For the first time, the packaging industry has been presented with definite specifications and requirements and thus has had an opportunity to develop new combinations and new materials. For example, in approaching the packaging of bulk dehydrated vegetables for Army and Lend Lease use, initial and tentative standards were set, viz., to withstand certain specific handling and drop tests at temperatures from -20 deg. F. to 130 deg. F. and to allow not more than a 1% moisture increase when packaged dehydrated vegetables were stored at 90 deg. F. 90% R. H. for six months. Although these specifications in performance have been modified from time to time, at least food processors and packaging engineers for the first time could meet on the common ground of definite package requirements.

Not only do packaging engineers have certain responsibilities in the processing of food, but the responsibility of the processor is not ended when the product is in the final package. Packaging materials and methods should not be held responsible for all the problems of keeping quality, whether of spoilage or the maintenance of palatability. Many processed foods will deteriorate in quality regardless of the package. Effective packages should protect against spoilage by invasion of microorganisms; chemical changes as affected by conditions outside the container, such as oxidation; and give sufficient protection to insure the satisfactory physical condition of the product after handling and a reasonable shelf exposure. Packaging cannot improve the quality of the processed food. Packaging alone cannot prevent deterioration of quality inherent in processed food due, for example, to long storage at high temperatures in the case of canned or dehydrated foods. Packaging cannot assume the complete responsibility for the maintenance of the quality of foods.

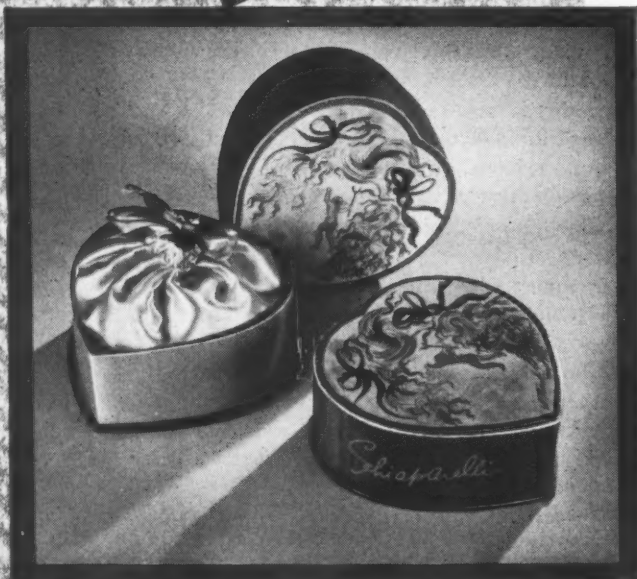
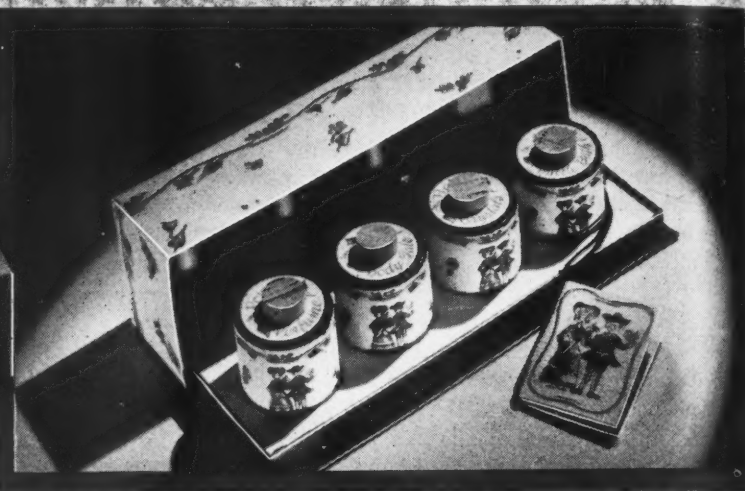
Many manufacturers of paper and allied materials are now making surveys the results of which will decide postwar developments in their particular plants and in the industry as a whole. There are certain outstanding basic features which should enter into the thinking of those responsible for the development of these policies.

It should not be forgotten that metal or the commonly referred to tin can is still the *par excellence* package for most processed foods. The manu- (Continued on page 144)

3—War requirements have made dehydration an important food preservation industry with postwar possibilities.



Packaging



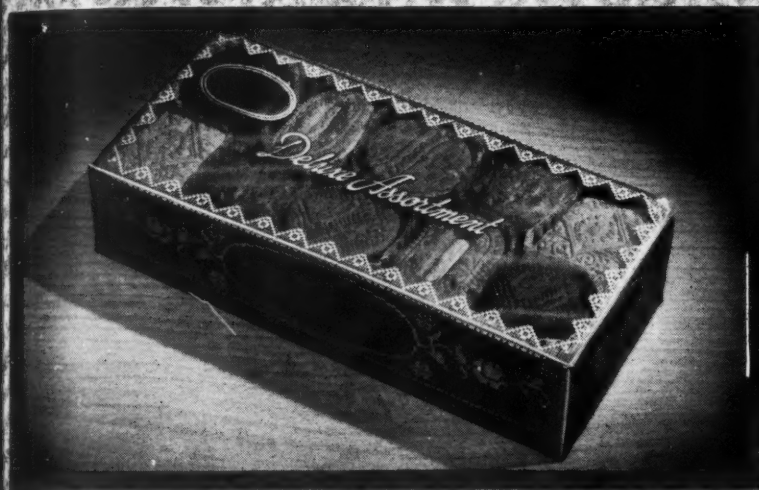
1 Pastel green and lavender are combined to make this new hinged-front box for Donna Lo's "Lingering Melody" perfume. The musical scale design of the paper covering is combined with notes and intertwined with a rose suggesting the name and the scent itself. Pale green rayon satin lines the box and is puffed around the indented platform into which the bottle fits. A small but distinctive label is the only decoration on the simple square stock bottle which is provided with a square cut-glass closure. The entire effect is that of a luxury package but it is achieved with not-hard-to-get materials.

2 These bath essentials are part of a family of products by Parfait, Inc., creators of the "Tradition 1700" line. The paper covering the containers and set-up boxes simulates white leather and is decorated with a hand-painted design picked up from the Pennsylvania Dutch. The liquid bubble bath and the cologne (not shown) come in glass flasks with skirt-like labels tied on with ribbon. Bath powder comes in the conventional round box distinguished by the same decorative pattern. Decorative paper, The Franklin Press, Chicago. Flasks, Glasco Products Co., Chicago, Ill.

3 About a year ago Schiaparelli brought out her perfumed oils with a Dali-designed label. The success of that package prompted this new heart-shaped purple box to hold the new deluxe face powder called Radiance. The inside of the box is lacquered red and a pale blue rayon satin drawstring bag holds the powder. The surrealist touch adds interest to the already unusual shape of the box itself.

4 Faced with the necessity for saving shipping space and box-board the Carlton Lamp Corp. redesigned its standard carton for auto lamp bulbs which it had been using for many years. The new carton saves 48% of cubical space and in addition reduces lamp bulb breakage sharply. In the old-stype carton breakage amounted to about 14% under test conditions. Only 2.6% of the bulbs packaged in the new cartons were broken during the tests.

Pageant



5

5 Enthusiastic reports from retailers show a fine sales acceptance of this new transparent package designed for J. B. Carr Biscuit Co.'s new deluxe assortment. The use of gold ovals with blue lettering imparts a luxurious feeling to the over-all design of white lace on glittering red, while the transparent cellophane creates a show-window for the cookies displayed. The overwrap is rotogravured on cellophane and is produced in roll form for use on automatic machines. Wrap, Milprint, Inc., Milwaukee, Wis.

6 A urea formaldehyde closure and a metal bottom complete this new fibre can newly adopted for Listerine Tooth Powder. The company states that the red of the plastic closure makes a definitely attractive package which, in many ways, is an improvement over the prewar ones. The metal bottom is used because it has proved tighter than a paper plug and in addition helps keep the contents dry even when the container is set down on a wet surface. Container, F. N. Burt Co., Inc., Buffalo, N. Y. Plastic top and closure, Prolon Plastics, Florence, Mass.

7 Skipper Gordon shave lotion bottle achieves a masculine effect by means of a stout, fine-mesh fish net covering, topped with a natural grain wood cap. The net design is repeated on the folding carton by means of lithography. The net, it is claimed, assures a non-skid grip for wet and soapy hands and cushions the bottle against breakage when traveling. Carton, American Coating Mills, Inc., Elkhart, Ind.

8 In order to save critical packaging material, cut down breakage, reduce transportation costs and provide a more economical package, the Retort Pharmaceutical Co., a division of Cole Laboratories, Long Island City, has done intensive research and testing of the effects of metal on tincture of green soap for more than two years in order to package this product in a can. As a result, a modern metal container has just been adopted by this company. No paper label is necessary as the can itself is lithographed in blue and white with both sell copy and trademark. Cans, Feins Tin Can Co., Brooklyn, N. Y.

(Page 101)



6



8





1—This is a general view of the partial dinner unit packaging lines in the Brewer plant. Seven such lines turn out 1,166,000 packages of the partial dinner unit a week working two shifts of eight hours each.

Contract packaging . . . efficiency by incentive

The adoption of a production incentive system, based on a series of time studies and augmented by a progressive employee relations policy, has brought production per worker to a notably high level on contract packaging of U. S. Army rations by the Chicago firm of Chas. A. Brewer & Sons.

Under the stimulus of this program, the company is now turning out 1,166,000 partial dinner units per week for the "10-in-1" ration, which is more than one-third of the Army's current requirements on this item and more than twice the volume being packed by any other supplier, according to N. C. Brewer, Jr., general manager and partner in the company. In addition, the firm has cut its labor turnover from a high point of more than 30% last July to an insignificant level at present.

The Brewer concern is now devoting about 95% of its total production to contract packaging of military rations, with approximately 500 persons, of whom more than 90% are women, employed on packaging operations. In its original plant—which prior to the war produced hot dish mats, paper napkins, punchboards and related items—the company is packaging three types of ration biscuits in heat-sealing cellophane envelopes. In Plant No. 2, located in a warehouse several blocks distant, it combines these biscuits with other pre-packaged food components in the partial dinner units, which are then shipped to several assemblers' plants for inclusion in the complete 10-in-1 ration.

Although contract packaging is an entirely new enterprise for the Brewer organization, the company has telescoped

years of packaging experience into a relatively short period under the pressure of wartime requirements. Before accepting the present contracts, the Brewer company handled another contract on the super-secret "X" ration; did a considerable amount of ordnance packaging, and completed another contract on D ration (4-oz. bars of fortified chocolate, packed in waxed cartons) only a short time ago. It is on the present operations, however, that the company has brought its packaging technique to the highest degree of efficiency.

With the cooperation of Quartermaster Department representatives, the Brewer company worked out its system of packing the ration biscuits in cellophane bags when military demand for the biscuits outstripped the packaging capacity of the bakeries supplying them. It was, Mr. Brewer states, the first company to begin packing the biscuits directly from bulk containers into such a package.

Utilizing a biscuit line with 24 stuffers, three sealers, six packers, three supply girls, a supervisor and an assistant supervisor, the company attains an output of 75 to 80 sealed packages per minute on this operation, for a weekly volume of from 1,100,000 to 1,200,000 units. The heat-sealing operation is handled by three rotary sealing machines with pre-heaters removed and guide rails substituted; pre-heating is not required for the single-thickness envelope of No. 450 cellophane. The sealed bags are packed into corrugated cartons and delivered by trailer to Plant No. 2 for subsequent operations.

Four types of partial dinner units, designated as Menus

Nos. 1, 3, 4 and 5, are now being packaged in this plant. The units are varied as to the kind of confection and the flavor of beverage powder—orange, grape or lemon—which are packed in each. A typical completed package contains an individual packet of biscuits; a pre-packaged confection; a package of compressed, granulated or tablet sugar; an individual sealed packet of beverage powder; a stick of gum, and a key which is used to open the can of meat or cheese which is later combined with this group of components in the 10-in-1 ration.

As originally set up, the Brewer partial dinner unit operation utilized 13 packaging lines to attain a volume of approximately 1,000,000 completed units per week. Not satisfied with this production, the company instituted a three-month time study through which the packaging lines were progressively modified. As indicated by this checkup, the preliminary arrangement resulted in an unbalanced condition of the lines, with some operations overstaffed and others lacking adequate labor. The situation was further complicated by a serious labor turnover problem: in the month of July alone, separations exceeded 30%. Four office girls were working full time hiring replacements for the packaging lines and large newspaper ads were being published to help offset the heavy drain of labor to other war industries.

Brewer executives, through their time study, turned the spotlight on the basic causes of production difficulties. Guided by facts and figures uncovered in the time study, they set up the partial dinner unit operation under an incentive plan which made it possible for employees to earn as much as 3 or 4 extra hours' pay in an 8-hour shift by exceeding production quotas in the same proportion. The saving in labor is demonstrated by the contract requirement of 1,166,000 units per week, which is now handled by seven packaging lines, working two 8-hour shifts, six days per week. The production cost has not increased under the incentive plan, and at the same time labor turnover and absenteeism have been practically eliminated.

The incentive plan is soundly merchandised to the employees by conspicuously posting daily production records for each line where workers may inspect them at their convenience. Under the incentive system, as the employees well realize, one lagging worker can reduce the output—and, consequently, the earnings—of her entire line. As might be expected, the girls strive constantly to increase their efficiency.

Production achievements on the partial dinner unit line are not, however, attributable solely to the prospect of increased earnings. Recognizing that the repetitive nature of many packaging operations puts a premium on employee morale, the Brewer organization has built up a broad program of employee relations which any packaging firm having an unduly high labor turnover might well examine.

A visitor entering Brewer Plant No. 2, where the partial dinner unit is packaged, is immediately impressed by the air of informal efficiency which fills the room. The girls are working at a rapid pace—group- (Continued on page 142)



2—Intensive time studies resulted in present arrangement of lines, with smooth flow of work. **3**—After stuffing operations, worker at left puts key and beverage powder into cellophane envelope. Before envelope passes through rotary heat sealer (at end of line), residual air is withdrawn by vacuum line. **4**—N. C. Brewer, Jr. (center) general manager, and Marvin Olson, superintendent, look on while immersion test to check seal is being made.



1



2

1—Kimsul wrapper is copper-maroon kraft with black and white printing. 2—Roll package is basic part of display. Eye-catcher carton posters each portraying a heating crisis, attract the shopper's attention.

Brand promotion . . . for insulating material

Sometimes the possibilities of using a package for promoting the brand names of such items as building materials are overlooked. Such items are often ordered by the contractor and used without the consumer seeing the actual material.

On the other hand, many such materials are sold through dealer outlets and a package promotion, tied in with window displays and other point-of-sale aids, can do a very good job of acquainting a consumer with the uses of such materials, creating a desire for it and establishing a trade name.

A good example of this is the new wrapper for rolls of Kimsul, a home insulating material manufactured by the Kimberly-Clark Corp.

This fall, fuel rationing has made everybody conscious of the heating problem. Anything that will make the fuel go farther and keep the house more comfortable has wide appeal.

To make the most of this situation, Kimberly-Clark designed a new package for Kimsul and when the fall season came around were ready with a complete consumer campaign to help dealers tell home owners the advantages of Kimsul.

The material selected is a wrapper of copper-maroon dyed kraft, printed in black and white. Large white lettering in a rectangular panel on the sides, top and bottom of the roll present the name Kimsul boldly. A selling message is conveyed on the sides of the package by the slogan "Be warmer in winter; be cooler in summer." The name of the company also appears on the sides of the package and in circular design around the top of the rolls.

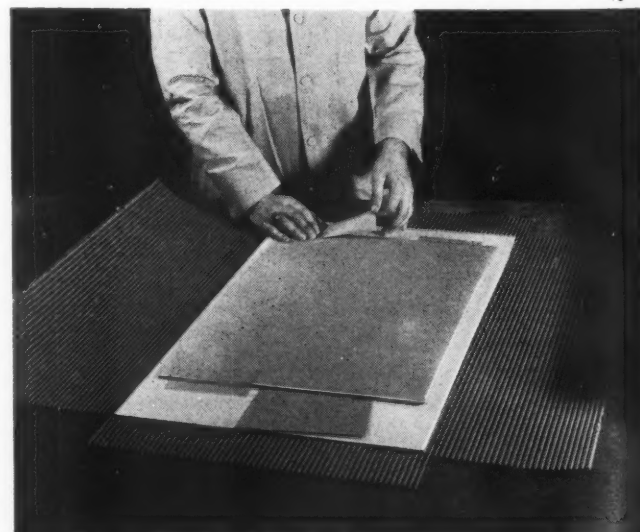
Immediately the package was selected and in production, plans went forward in cooperation with the company's advertising agency, Foote, Cone and Belding, on a dealer portfolio of point-of-sale material to suggest how to obtain greatest merchandising value for the new package.

In the portfolio is a score of suggestions for the arrangement of the display material. In each case, the basic props are the rolls of packaged Kimsul. Around these can be grouped several of the easel posters, each done in cartoon technique, but each one with a different selling message to suit every need.

Some of them describe the product. One shows how the insulation material is applied and tells how you can insulate your home yourself for as little as \$40 for the average home. Still another describes the principle that heat travels "up"

4—Each set of display material is wrapped in both directions with corrugated board, sealed with gummed tape.

4



3—Dealer portfolio suggests how use may be made of the display material either for large mass effects or small windows or interior floor effects.



with the suggestion that Kimsul between attic and upstairs rooms keeps heat below decks where it is needed.

Then with a caption tie-in, "Don't let this happen; insulate with Kimsul," are four eye-catcher cartoon posters, each portraying a heat crisis in the average American family. One shows a man and wife (husband wrapped in blankets) huddled around a radiator. Wife says, "I'm shivering John, won't you turn up the furnace?" John says, "But we won't have fuel coupons for next month." Another shows a family where the children "have had colds and coughs all winter," and "no wonder with this chilly house and drafty floors." A third depicts an irate householder demanding additional fuel coupons at the ration board. The fourth is based on the old budget argument, "How to cut down on fuel bills?"

All of these posters are in four colors. The suggestions in the portfolio show how each dealer may use these materials most advantageously in whatever amount of window or floor space he has available. His arrangements may include only a few of the packaged rolls or a mass display of them, but

wherever the posters are used the packages are an integral part of the display—so that the shopper is not only conscious of the idea "to insulate" but what to look for when he is about to buy this year-round insulating material.

The company also furnishes descriptive folders with the packages to be placed as "take-ones" near the displays.

Kimberly-Clark is also proud of another phase of this campaign—the method of packing designed for the shipment of the displays. Each set of eight display pieces was wrapped tightly in both directions with single-faced corrugated board and sealed with gummed tape. Twelve sets were then wrapped in a special 30-60-30 duplex kraft sheet with 60-lb. asphalt film, over-all printed on one side with the Kimsul logotype. The package was then rope tied. All shipments were by Railway Express and none of the several thousand shipped was damaged, the company stated.

CREDIT: Kimsul wrap design, Andrew P. Olsen, Chicago. Displays design, Jack Strausberg, Chicago. Printing Rowen Litho Press, Chicago.

5—Twelve sets are then wrapped in duplex kraft with asphalt film, overall printed on one side with the Kimsul logotype. 6—Then rope tied. Not one piece of several thousand shipped was reported damaged.



Sealing case liners with a spray gun



1—Waterproof bag for lining shipping case is made of heavy waterproof paper. In making bags, joints are sealed with elastic cement. Cement is applied to all seams with standard spray gun with suction feed cup. 2—Part of bag-making operation. Bag is made upside down on form. Gun assures even and complete application of adhesive.



The DeVilbiss Co. is one of the leading producers of industrial spraying equipment. Here is a picture story showing how this company has adapted one of its own spray guns for the application of adhesive in preparing for export shipment the small air compressing units the company makes for the Army Air Forces.

Each outfit is individually protected and boxed so that, regardless of what climatic or handling hazards it encounters, each unit should reach its destination ready to operate.

The immediate barrier protecting the outfit is a foil-lined bag in which the unit is sealed, along with an appropriate quantity of silica gel to absorb the moisture in the bag. The unit is then placed in an export packing case lined with a sealed waterproof bag. Photos show major steps in preparing the package for shipment.

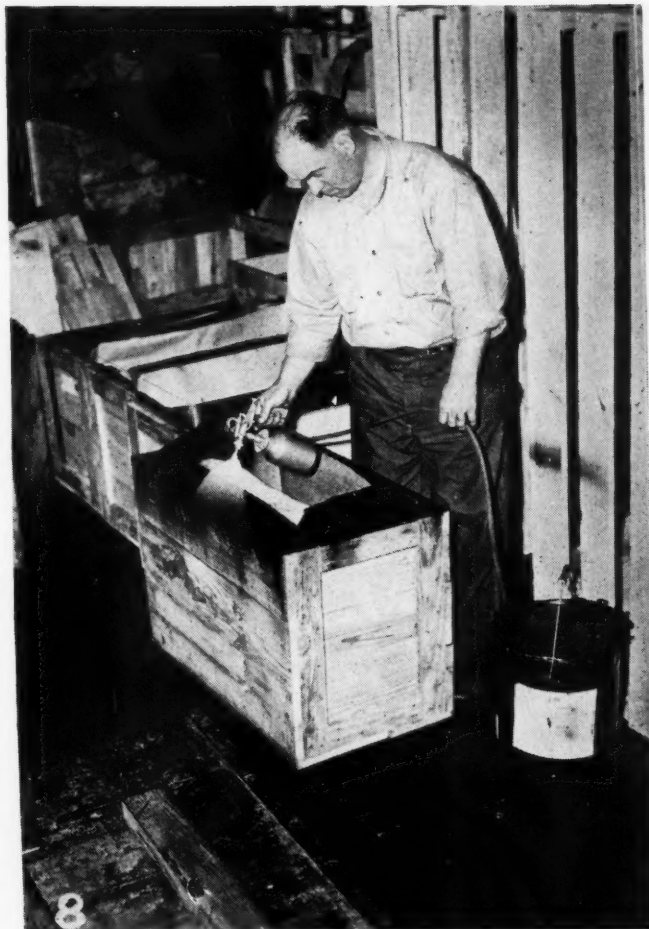


3—All joints must be pressed firmly for tight seal. 4—Top flaps are creased before bag is released from form.



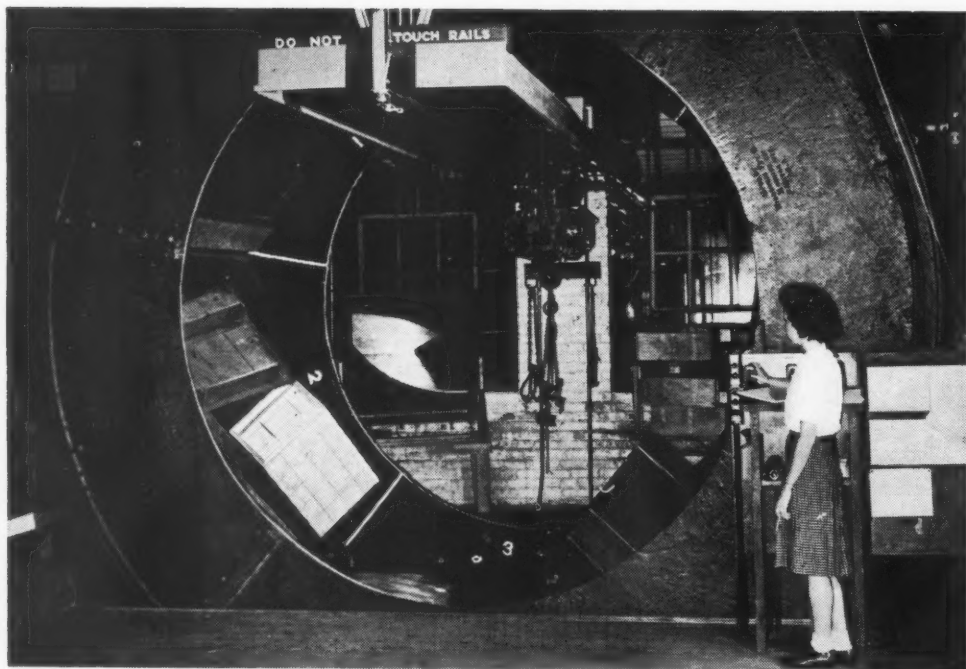


5—Air-compressing outfit is carefully lowered into special foil-lined bag, bolted to cross braces. 6—Outfit in foil bag is lowered into waterproof paper bag in box. 7—Foil-lined bag is then heat-sealed with hot iron.



8—Elastic cement is applied to top flaps of bag lining shipping case. 9—Adhesive is sprayed on cover of waterproof bag. Case is closed and strapped with steel bands.





1—In this huge drum at the Package Research Laboratory, Rockaway, N. J., boxes are tested for their ability to withstand falls at all angles. They fall six times with each revolution of the drum.

Engineering box and crate design

With thousands of packaging and shipping problems created by war requirements, the importance of box and crate engineering has been impressed upon many shippers who had never considered it a peacetime problem. Accordingly, the Wirebound Box Mfgs. Assn. anticipates much greater consideration among its customers postwar, of the shipping problem in manufacturing and packing.

While many wirebound box manufacturers have been providing engineering services to shippers for a number of years, the experience they have gained from the war and this increased awareness of users have paved the way for their plan to make box and crate engineering a major part of their effort to expand their industrial market.

With dollar volume up 110% from 1940, the industry in 1943 sold 125,000,000 wirebound boxes and crates for \$44,000,000. Much of this increase has been in the industrial field, where wirebounds have found increasing favor for machinery parts, complete motors and other heavy-duty jobs. Their light weight, which saves on shipping and handling, and their easy opening and closing have been major factors in this increasing popularity. Considerable savings on lumber have enhanced their popularity during the war and will probably continue to be a factor because of continued lumber shortages as well as lower cost.

Box and crate engineering in the wirebound industry has two fundamental phases: (1) Designing and testing boxes and crates which will assure safe transit of all types of products with light weight and easy handling. (2) Consulting with manufacturers on how they can avoid damage losses in designing, manufacturing and packing their products.

Besides impressing all shippers with the importance of these principles, this involves constant research in every phase of packing and shipping. The anticipated need for lightweight shipping containers to carry air freight is also stimulating research by the wirebound box manufacturers.

In one test case by the Package Research Laboratory at

Rockaway, N. J., two types of boxes were designed to carry ten five-pint bottles of acid—one a conventional nailed wooden box, the other a wirebound box. Each under tests demonstrated its ability to meet safety requirements, rough handling and other hazards. Because the wirebound box, taking strength from its wire and staples, used much lighter wood, its tare weight was 19 lbs., as against the 28 lbs.

On air freight costs alone, for a trip from Chicago to Pittsburgh at present air express rates, the wirebound box would save the shipper \$1.28, amounting to nearly 13 cents a bottle on the acid. Since the original cost of the nailed box was \$1.37 and that of the wirebound box only 35 cents (and if it can be assumed that each will be used only once) the overall saving would be \$2.30, or 23 cents per bottle of acid.

In another test, a nailed wooden box and a wirebound box of comparable strength were built to ship 32 one-pint bottles of acid. The first weighed 36 lbs., the wirebound, only 19 1/4 lbs.—a saving of 16 3/4 lbs., which at 14 cents per lb. for the present Chicago-Pittsburgh flight would save \$2.35.

Even allowing for lower freight rates after the war, the manufacturers of wirebound boxes see in these typical test cases a wide open opportunity to serve shippers who will send much of their material by air.

To fulfill this opportunity and to aid them in all other phases of box and crate engineering, the manufacturers utilize the services of expert laboratories which conduct research to develop boxes and crates and conduct tests to ascertain the acceptability of all types of shipping containers. Although there are laboratories in Chicago and in Madison, Wisconsin, the one most used by the manufacturers is the Package Research Laboratory, which besides conducting periodical tests and constant research during the war has filled important assignments for governmental agencies.

This laboratory contains devices for testing every possible type of hazard encountered by an item in transit. Several of these, recently developed in cooperation with the govern-

ment, are still secret, but others are indicative of the thoroughness and scientific accuracy observed.

Most basic is the huge tumbling drum which goes through one revolution a minute, tumbling the box and its contents six times at six different angles. Periodical observations of the box's condition are recorded and special attention is paid to the point where it shows signs of failing. When it fails to provide adequate protection, the box is considered to have reached its maximum resistance point and this is recorded as its standard. A mirror placed behind the drum permits observation of the far sides of the box.

To determine a box's or crate's ability to withstand severe falls, a drop test is performed. Containing its intended shipment, each box is dropped alternately on all of its corners onto a heavy steel plate. The number of falls withstood is listed as the box's rating.

A simple hand lever device tests the pressure resistance of the wire for the boxes and the staples that bind it to the wood. Since a wirebound box derives from the wire more than its own strength, importance of the wire is not over-looked.

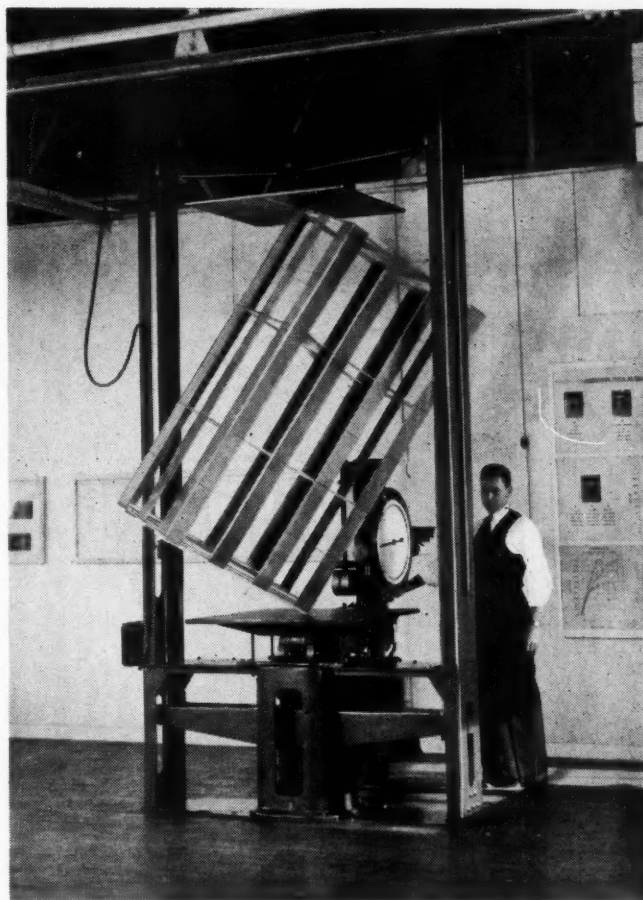
In a compression tester the shipping container is subjected to pressures at all angles to determine the point at which it will fail. To simulate treatment in freight car switching and humping, an incline tester determines how much shock it can withstand from slides against heavy barriers.

Still-secret devices test the ability of boxes to take the constant jolting of rides on freight trains which do not have the benefit of shock absorbers, to withstand extreme humidity, heat and cold.

Wirebound box manufacturers periodically select a few boxes at random from their production lines to be sent to Rockaway for these tests. On the basis of the findings, the laboratory makes any recommendations that seem necessary to assure the highest possible quality. Also, manufacturers frequently ask the laboratory to develop boxes to meet certain needs. In these instances, besides engineering the shipping container, the laboratory puts it through all tests and compares it with other types of containers.

A wirebound container is not recommended until it can equal or better competitive types in protection to the contents, while still saving on weight, wood and handling.

2



2—Compression tests are made on all angles of box or crate. 3—Box with 200 lbs. of castings is prepared for drop test. Distance of drop is set at 24 in. All 8 corners are thus tested. 4—Binding wire is tested carefully. Engineer Verna Lattig applies pressure on bit of wire placed horizontally between pegs at top of machine to learn at what point it will snap. Rigid standards are set. 5—Box on bottom of stack is sustaining pressure of 1,000 lbs.

3



4



5



Display Gallery

1



1 South America has come in for its share of American display methods. A good example of the type of counter piece going to our good neighbors is this one for Phillips Milk of Magnesia. The familiar blue and white package is reproduced in color cutouts arranged in step formation. The display is especially good for export trade because it is simple to set up and, at the same time, knocks down to a completely flat piece for shipping purposes. Display, Pioneer Mounting and Finishing Co., New York City. Lithography, Industrial Lithographic Co., New York City.

2 This counter display, made entirely of cardboard with a glass window, has been made for Royalist cigars to take the place of an all-metal and glass cabinet no longer available. The glass window is made with a cardboard frame, hinged so as to give long life and service. The rounded top not only adds to its beauty but imparts strength and takes away the effect of it being a cardboard display. It is claimed that this rigidly constructed unit is every bit as strong and durable as the former glass and metal one. Display, Leon L. Berkowitz, Philadelphia, Pa.

3 The construction of this new display for Taylor fever thermometers is cardboard with a simulated blond maple finish. The glass front keeps dust from the instruments and prevents pilfering and the whole tray holding the four thermometers is removable. In the back is a stock compartment which holds four of each of the thermometers shown and gives several good selling sentences for the use of the clerk. The whole display is shipped in a specially designed carton which holds 36 additional thermometers. The container complete with merchandise is so constructed that it actually consumes no more space than would ordinarily be used to ship the display alone. Display, Schaefer-Ross Co., Inc., Webster, N. Y.

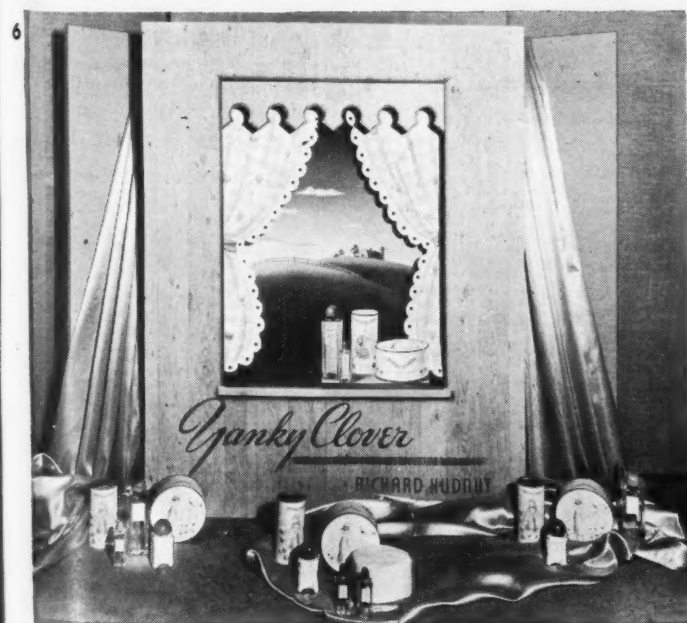
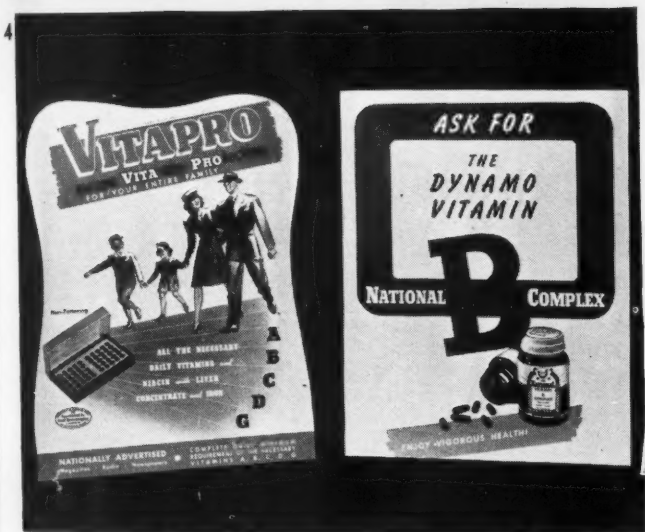
4 National Package Drugs, Inc., is showing two new displays lithographed in full color for its Vitapro and National B

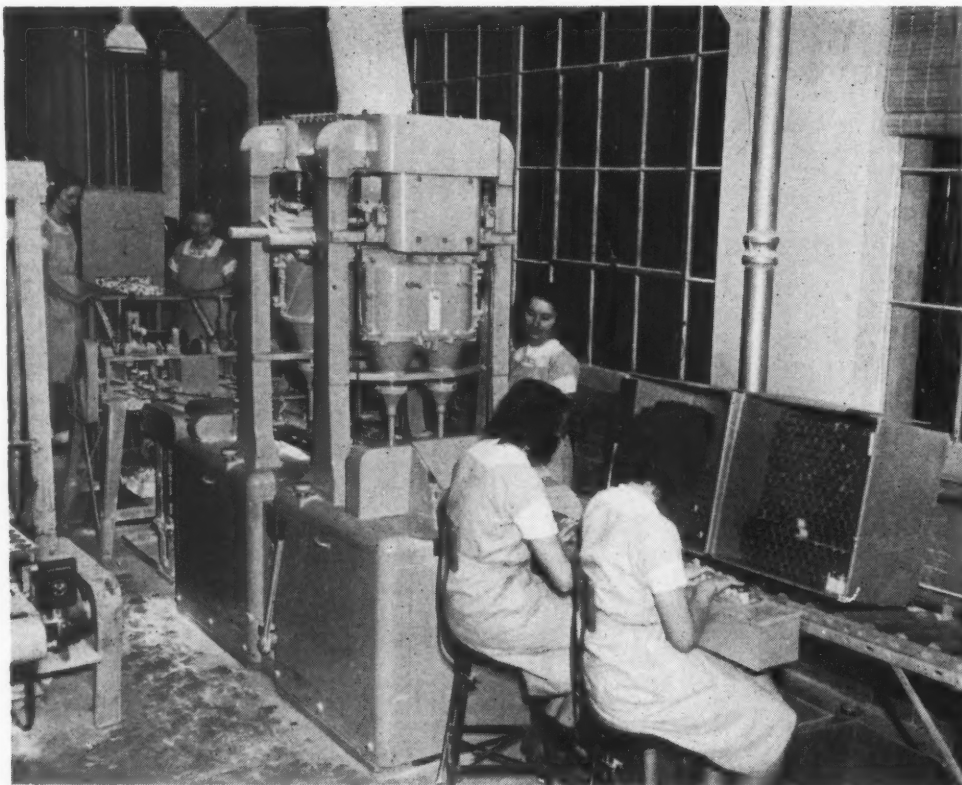
Complex capsules. Vitapro, a multiple vitamin, is being promoted as protection for the entire family while the B Complex display card plays up the "Dynamo Vitamin." Both cards are easel mounted and can be used either in building a window display or for the interior of the store. Display, Compton & Sons Lithograph Co., St. Louis, Mo.

5 "Plex" cellulose complexion sponges are returning to druggists' shelves and counters again. The individually packaged sponges are provided with this self-service counter display unit to aid sales. The shipping container forms the base, with a scored decorative card which slips into the carton to make the finished display. The front of the carton gives suggested uses for the sponges—for cosmetic uses as well as for cleaning gloves; as a shoe heel rest and for bathing the baby. Display, Shuttleworth Carton Co., New York.

6 The new window display for Hudnut's Yanky Clover achieves two important things. It obtains a background with a rural atmosphere which ties in with the fragrance of the cosmetics and, at the same time, it is smartly modern in motif. The tag line, "America's Meadowsweet Fragrance," is emphasized by the third dimensional effect of the urban scene set against the window frame. The pattern in the curtain accentuates the overall design of the packages themselves. Display created by Hussey-Woodward Inc., New York City.

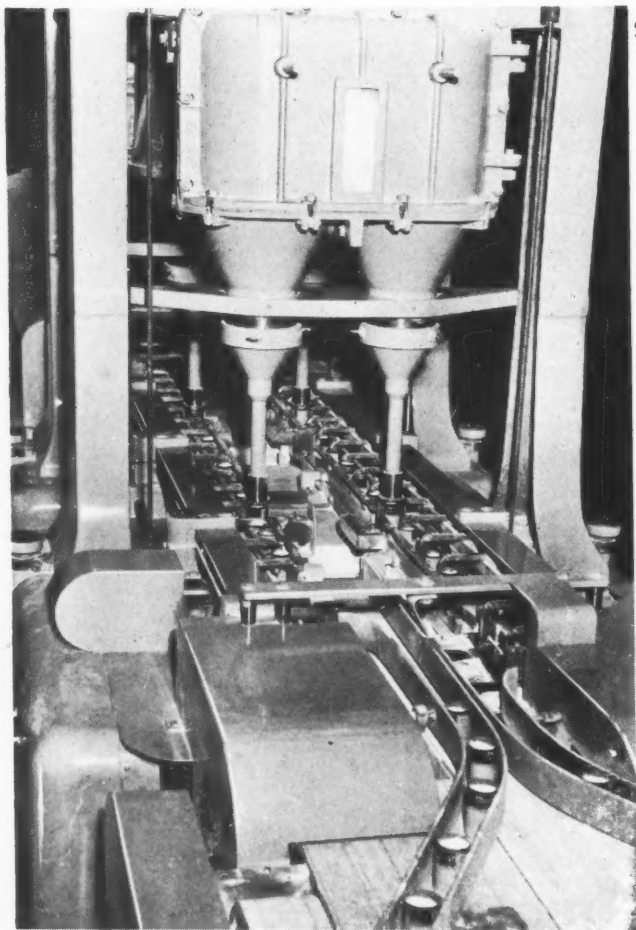
7 Helene Pessl introduces her new line of "Little Lady" cosmetics with this appropriate display centered around an enlarged cutout of the little lady shown on the line. She is easel mounted and hand painted in full color. Along with this piece come counter signs, all with the same motif, to aid and abet the sales of this complete line of cosmetics planned especially for little girls. Cutout Joseph Marcus, New York. Hand-painting, Ardic Co., New York City.





1—Double line of $\frac{3}{4}$ oz. fibre cans feed into quadruple-head machine which fills them with tooth powder at rate of 125 per minute. In the background is machine which inserts circular paper disc closures. 2—Close-up of volumetric fillers. Cans are moving toward camera.

High-speed filling of powdered products



Something of a preview of postwar improvements in packaging machinery may be found at the R. L. Watkins Co. Division of Sterling Drug, Inc., in Rahway, N. J., packagers of Dr. Lyon's Tooth Powder.

While forced to improvise, as most packagers have been in filling a variety of substitute containers for civilian trade, the Watkins Co., has one line which, through virtue of an Army contract, has been kept up to the minute in filling methods and speed. This line in the last two years has turned out more than 10,000,000 cans of tooth powder for the Quartermaster Corps.

Keystone of the high-speed production is a new quadruple-head, augur-feed powder filling machine which fills $\frac{3}{4}$ -oz. metal or fibre cans under volumetric control at the rate of 125 a minute.

The cans move under the filling heads in a double line. Guides are adjustable for various sizes and shapes of containers, and the filling heads may be easily raised or lowered. A mechanical adjustment on the side of the machine will instantly increase or decrease the amount of fill to any desired level. So far, the machine has been used only on the $\frac{3}{4}$ -oz. Army oval metal can and on a $\frac{3}{4}$ -oz. round fibre can packed for sale in variety stores.

After filling, the fibre cans move into a machine where the circular paper disc closures are automatically inserted, two at a time. Forming into a single line, the cans then pass under a roller which pushes the disc top firmly in place. The cans are immediately stacked in three-gross shipping cartons for transport to any Army assembly plant or to civilian outlets.

Alternatively, when the machine is used to fill the $\frac{3}{4}$ -oz. oval metal can, the can bases are filled in an identical manner.

The containers then have their metal shoulders crimped on and finally pass under a machine which sets the metal slip cap in place.

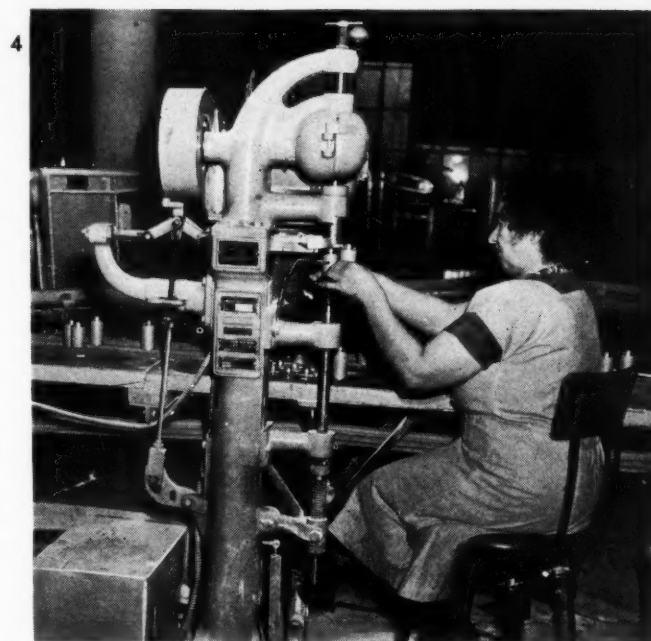
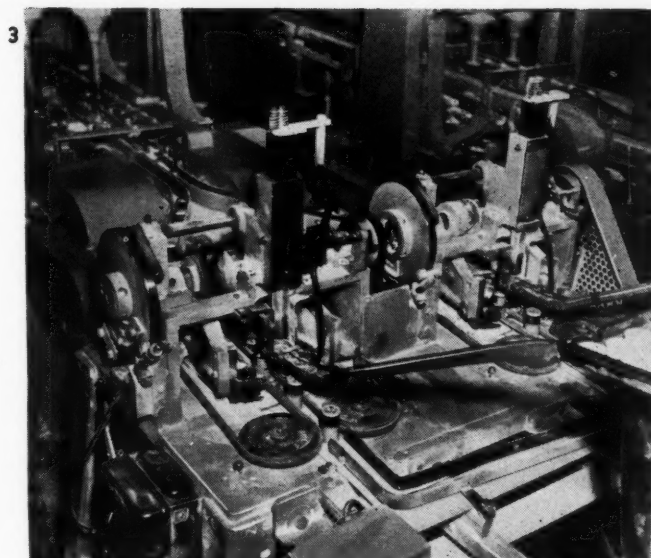
Altogether, the Watkins plant is turning out some 40,000,000 packages of tooth powder a year. Numerous substitute containers have been used for the 2, 4½ and 10-oz. civilian packages, and a high degree of improvisation has been required to adapt existing packaging machinery from prewar oval metal cans to the substitute fibre containers of many sizes and shapes.

Currently, fibre cans with metal tops are being used for these civilian sizes. Machines rented from two of the can companies are used to crimp on the metal tops. Some of these machines are so ancient they appear to have been retrieved virtually from the scrap heap, but they are being made to work. Throughout, the adapted filling line has been fixed up with wood and fibreboard guards and guides for purposes of safety.

Some of the crimping machines required manual operation of a pedal to bring the can up against the crimping head. The constant nine-inch stroke of this pedal was found to be too tiring for women workers and too slow, so Watkins' machinists devised a gear box operated by an electric motor which pushes the pedal automatically. A single woman operator now handles at least 30 cans a minute.

Glass bottles with screw caps are used alternately on the civilian line. When bottles are running, they are shunted off short of the can-crimping machines and sent through a refurbished O. & J. labeler which has been adapted to tighten the caps after they have been started by hand. This type of labeler is designed to revolve the bottle as the label is applied; Watkins simply uses the revolving motion to tighten the cap. The bottles then go through another O. & J. machine which applies the labels in the regular way.

CREDIT: Filling machine, U. S. Automatic Box Machinery Co., Inc., Boston, Mass.; closure crimper for small cans, Urbana Tool & Die Co., Urbana, O.; crimpers for larger fibre cans, Owens-Illinois Can Co., and American Can Co.; labelers, O. & J. Machine Co., Worcester, Mass., and Standard-Knapp Corp., Portland, Conn.



3—Fibre disc closures move from hopper (right) down chutes to machines which place them on cans. Cans move on to roller, off right, which seals closure. 4—Old-style crimper attaches metal tops to 2-oz. fibre cans. Electric motor (lower left, in wooden housing) was rigged up for speed and to avoid difficult manual operation. 5—Rotary labeler with special fittings tightens screw closure started by hand on glass jar.

Saving tare with custom-built corrugated



PHOTOS, COURTESY HINDE & DAUCH PAPER CO.

1—This specially designed, compartmented corrugated box has successfully replaced a wooden crate, which weighed 20 lbs. more, in the shipment of porcelain scales. Substantial savings are made in freight and packing time.

Since the outbreak of the war the Sanitary Scale Co., Belvidere, Ill., has augmented its regular production of scales with the manufacture of two vital plane parts that go into every bomber produced at the Ford Motor Company's Willow Run plant. Sanitary Scale is the only firm making these vital parts for Willow Run, and hence it is absolutely necessary that they be produced and shipped in time to meet assembly line schedules.

Addition of bomber parts to the scale firm's regular production work has necessitated a trebling of factory personnel and has emphasized the need for taking full advantage of any methods or techniques that could make individual man-hours more productive.

The first thing to be scrutinized carefully under this new demand for increased efficiency was the packaging of the company's scales, which for years had been shipped in wire-bound wooden crates. These were heavy and bulky; they kept shipping bills high and required considerable time for set-up and packing.

The company decided to investigate corrugated boxes even though the weight and nature of their product seemed to make the successful use of corrugated questionable. Working in conjunction with their corrugated box supplier, they were able to design a shipping box that reduced over-all weight, cost less, and substantially decreased the time required in setting up and packing.

The wire-bound wooden crate formerly used and the corrugated box of 500-lb. test material both were efficiently designed from the viewpoint of eliminating breakage. Both could be re-used by salesmen to return scales later for repair or to send them on to customers. The difference, however, is found in the time and cost required to attain these same objectives.

The original wooden shipping crates weighed 49 lbs. each—29 lbs. heavier than the new corrugated boxes. Since the firm's average shipping rate is 1.7¢ a pound, use of the corrugated boxes means an average saving of 49½¢ on each shipment—and an even greater saving when shipments are by express.

Savings in man-hours effected through use of the corrugated boxes are equally impressive. It used to take about 20 minutes to set up the wooden crate and about 25 minutes to pack a scale in it. The corrugated box brought about a saving of ten minutes on each of these operations or a 45% saving in man-hours. Since the packers are paid at the rate of 1½¢ a minute, a labor cost saving of 30¢ on each scale shipment was made.

Another important reduction in cost resulted from the fact that the corrugated boxes cost \$1.00 each, whereas the original wooden crates cost \$1.25 each. The total saving, therefore, on each scale shipped in the new corrugated boxes adds up to \$1.04½.

Use of corrugated boxes for shipment of bomber parts has effected similar savings. Engineered corrugated shipping boxes for these parts average roughly three lbs. each, or 17 lbs. lighter than wooden crates. Since the freight rate to Detroit is \$1.01 per 100 lbs., a saving of \$8.58 for every 50 parts shipped was made.

Two other factors of vital importance enter into the shipment of Liberator bomber parts. Just two minutes is required to set up a box, insert a part and seal. This efficient use of man-hours, and the fact that practically no rejections or complaints have been received as a result of damage in transit, is of great importance since such damage would effect not only a loss in the cost of material and labor, which went into the product, but a serious loss in man-hours that could hardly be replaced.

CREDIT: Corrugated boxes, Hinde & Dauch Paper Co., Sandusky, O.

2—Bomber parts are packed in this special carton in two minutes, and tare is reduced from 20 lbs. to 3 lbs.





The Turkish Delight

The Odalisk was the typical Turkish pin-up—the delight of every Turkish male. She was a woman of generous proportions with a lot of hip and bosom. She used a lot of cosmetics. She rouged the inside of her nose and did a lot of other things which we don't consider especially attractive.

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Please feel free to consult us on your packaging requirements.

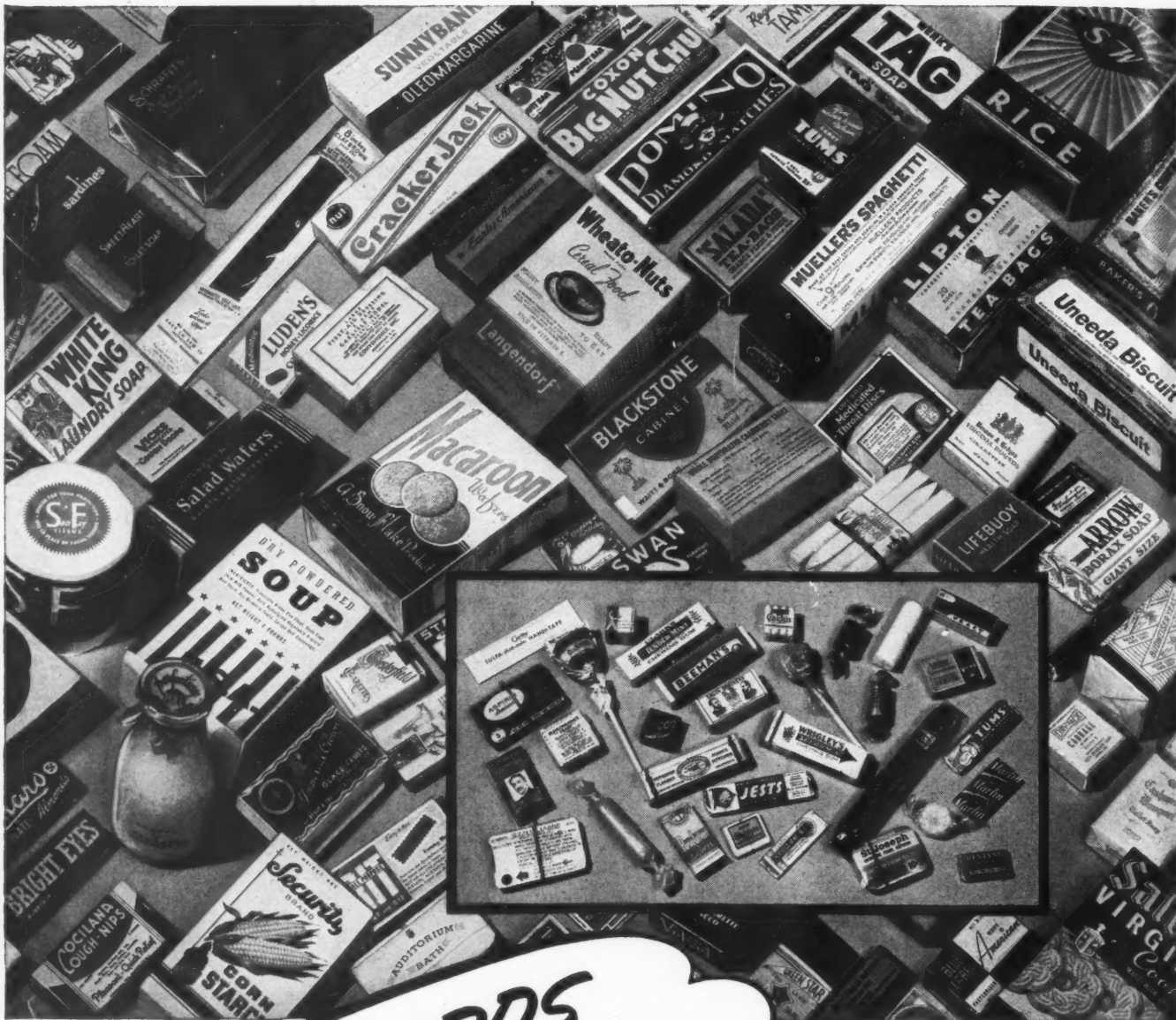
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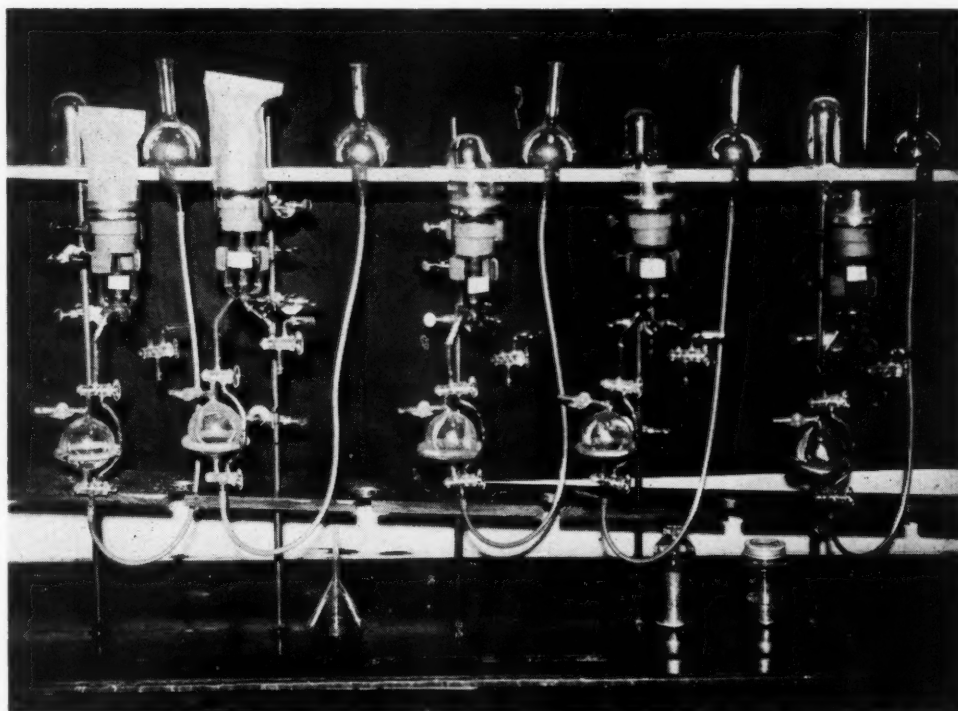
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TECHNICAL SECTION

CHARLES A. SOUTHWICK, JR. TECHNICAL EDITOR

MACHINERY
PRODUCTION
TESTING

†—Two apparatuses at left are for measurement of oxygen penetration from surrounding air into pouches. Apparatus in center, with glass cap, is for check of method. Two apparatuses at right are for measurement of penetration from surrounding air through sample of package material.



Oxygen penetration test on the package itself

by Max Kleiber and F. R. Smith*

Old Greek philosophers theorized that the air we breathe contains a "pneuma," or spirit essential for life. At the time of the American Revolution a French scientist, Lavoisier, soberly investigated the physical, chemical and some biological properties of this "spirit of life." He called it oxygen and discovered that 100 liters of air contains about 20 liters of this important gas. Much as we want oxygen in our blood, we do not want it in our food packages, because it is a chief cause of the deterioration of dried food.

Most of the oxygen can be removed from packages by

* Of the College of Agriculture, University of California, Davis, Calif. Dr. Smith is at present working for the U. S. Navy. Dr. J. L. Henderson continues the investigation.

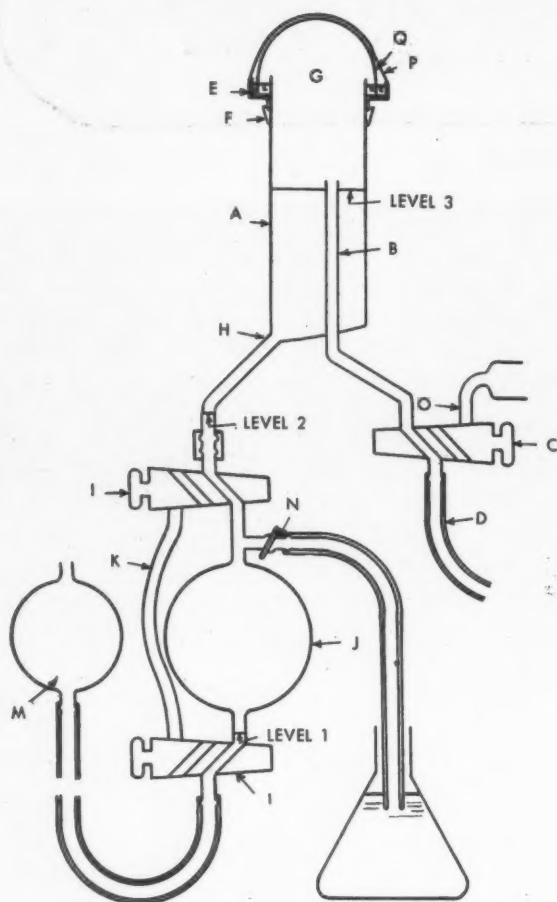
Gas transmission characteristics of a basic material are not necessarily those of a finished pouch or package made of the material. Performances of packages made of an identical material by different manufacturers may vary considerably. The method described here for measuring oxygen penetration is unusual in that it is applicable to the completed package.

sucking all the air out (evacuation). To maintain the vacuum the food package must then withstand the pressure of the atmosphere. This great difference of gas pressure is unnecessary if, instead of evacuation, oxygen is driven out of packages by so-called inert gases such as nitrogen or carbon dioxide, which do not produce food deterioration.

Apparatuses described earlier test the ability of packaging materials to withstand differences in gas pressure. These apparatuses measure the air permeability under pressure. Although the results are undoubtedly of interest, a more important problem in food packaging is the permeability to oxygen itself, the great spoiler of food. A packaging material that would let oxygen diffuse to the food would be undesirable even though it might prove relatively resistant to air penetration under pressure; and another material, less resistant to air penetration under pressure, might be highly desirable if it only kept oxygen (and water vapor) out, regardless of nitrogen penetration.

The apparatus of Smith and Kleiber was designed especially for measuring the ability of materials to keep oxygen out of packages that are not evacuated. The apparatus is particularly useful because it permits one to measure the rate of oxygen penetration not only through samples of the packaging material but also into the pouches themselves.

The apparatus (Fig. 2) consists of a glass diffusion



2—Diagram of the apparatus, which may be used for measuring oxygen penetration either through the completed package or pouch or the packaging material alone.

chamber, A, having an outside diameter of 6 cm. and a length of about 18 cm. Gas may be introduced and sampled through a tube, B, the end of which is about 8 cm. below the top of the diffusion chamber. B connects to either a nitrogen tank or a gas-sampling bulb, through the three-way stopcock, C, and rubber tubing, D. A glass receptacle, E, containing mercury is fastened to the diffusion chamber with a piece of bicycle inner tubing, F. The orifice, G, of chamber A may then be closed with a glass bell, Q, or with a sack of the packaging material in question. It has been desirable to hold the glass bell or packaging material in the mercury with Scotch tape, P, fastened over the top. Tube H is connected by a piece of rubber (pressure) tubing with a three-way stopcock, I. One opening of this stopcock is connected to the 250-ml. glass bulb, J, while the other connects with a glass tube, K. Thus by manipulating stopcocks I and L, connection to the diffusion chamber may be made either through bulb J or through tube K. Stopcock L connects with the mercury-leveling bulb by means of rubber tubing.

In operation, the mercury-leveling bulb, M, and stopcocks I and L are manipulated so that K is completely filled with mercury. This tube remains filled during measurements. The glass bell or packaging material is held solidly in the mercury seal by Scotch tape. M is adjusted so that the mercury stands at level 1. Stopcock N is opened, and stopcock I is turned to connect bulb J and chamber A. Stopcock

C is opened into tube B, and gas is allowed to flow from a nitrogen tank through A. The excess gas escaping through N is allowed to bubble through water. Thus a constant positive pressure is maintained in the apparatus during replacement of the gas.

After the gas has flowed for a few seconds, M is raised so that the mercury rises from level 1 just to the top of J. The leveling bulb is then lowered, and the mercury allowed to fall to level 1. Meanwhile the nitrogen must be kept flowing fast enough to ensure constant escape of gas through N as measured by constant bubbling through the water seal. Two manipulations of the leveling bulb usually give satisfactory replacement of the air. Stopcocks C and N are then closed simultaneously, and the tube at the lower end of C is connected by rubber tubing to a gas-sampling bulb containing mercury. C is now opened into tube O, and the mercury in the gas-sampling bulb is forced up to flow into O. C is then opened into B, and I and L are adjusted to open the connection between M and A through J. M is raised, and simultaneously the mercury in the sampling bulb is lowered. This drives the gas from A into the sampling bulb.

When the mercury in the apparatus reaches level 2, stopcocks I and C are closed, and the sampling bulb is removed for analysis of the sample. M is then lowered; and N is opened, allowing all the mercury, except that above I, to flow back into the leveling bulb. This mercury may be used in other apparatus during the diffusion study.

At the expiration of the time allotted for diffusion, a second sample is taken. (Diffusion time must be determined according to the permeability of the material to be tested. As a rule, 48 hours is satisfactory.) For the second sample the gas-sampling bulb is connected and manipulated as before. M is raised to a point about level with the top of the diffusion chamber; I and L are adjusted so that the mercury flows into the diffusion chamber through K. As the mercury flows, the gas sample is collected in the sampling bulb. When the mercury reaches level 3 the stopcocks may be shut off and the gas sample removed for analysis. The mercury in the diffusion chamber is returned to the leveling bulb.

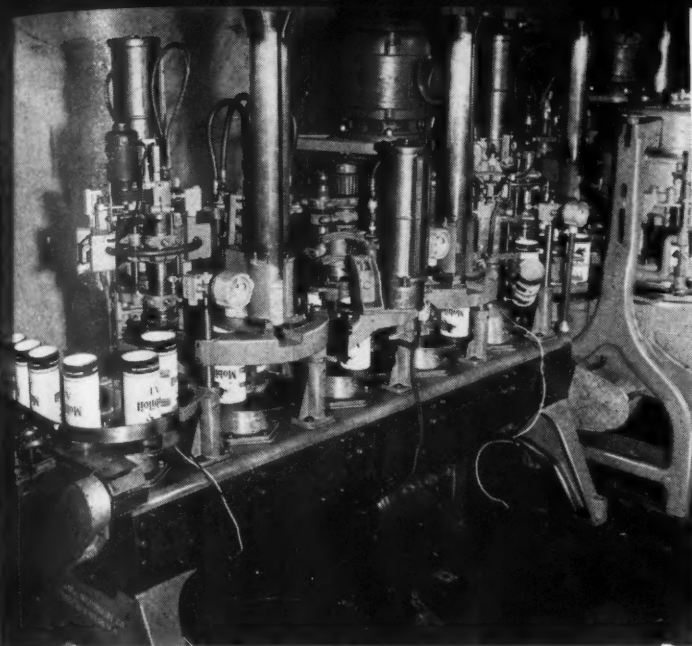
The gas has been analyzed with a modified Haldane apparatus described by Kleiber. The mean standard difference between two results on the same sample is below $\pm 0.01\%$.

Results

An example may be used to explain the calculation of an oxygen-penetration test with a cellophane pouch.

The pouch was placed upside down over the top of the diffusion chamber (G, Fig. 2). (See the two apparatuses on the left side in Fig. 1.) The edges of its open end were immersed in the mercury seal E. The pouch thus replaced the domelike glass bell (Q in Fig. 2) to close the diffusion chamber. Nitrogen gas from a pressure cylinder was then allowed to flow through the diffusion chamber, as explained above, until this chamber was filled with almost pure nitrogen. According to an initial analysis, the gas enclosed in the diffusion chamber at the start of the test contained 0.054 volume per cent oxygen. The total volume of gas trapped under the pouch in the diffusion chamber (above level 2 in Fig. 2) was estimated at 900 cc. This gas contained, according to the initial analysis, 9 times 0.054, or 0.486 cc. of oxygen.

A second analysis of the gas under the pouch was made 555 hours later. It indicated that the oxygen concentration in the diffusion chamber had risen to 0.175 volume per cent. This meant that at the end of (Continued on page 140)



1



2

1—War developed machinery and greaseproof coatings combine to make the paper oil container a serious contender. This machine takes pre-labeled, spiral-wound tube, entering from left, seals in newsboard bottom end and up-ends the container ready for filling in machine at far right. 2—After filling, at left, top and disc are sealed in and disposable package is ready for market. Production rate is 70 per minute.

Coatings . . . for greaseproofing paper containers

by Burton H. Greenwood*

Wartime developments in coatings for paper containers have brought close to realization the prediction that some day practically any product may safely be packaged in paper.

There are sound reasons, too, for continuing the development and use of paper containers after the war. The country's metal resources are far from inexhaustible—particularly in view of the necessity for high postwar production of durable consumer goods. And the economics of population make constantly more important the question of disposability of containers. Already the disposal of discarded metal and glass containers in our crowded cities is an expensive problem; paper containers, on the other hand, are readily burned in the furnace or incinerator.

Paper, because of its ability to impart almost any desired physical properties when properly treated or coated, is going to satisfy an increasing number of packaging requirements. Development work on coatings for paper continues, with very considerable progress being reported.

One coating material that shows promise is a complex compound of organic materials of animal and vegetable origin, developed for use as a coating for fibrous materials such as paper, paperboard, fibreboard, cardboard and cloth. It is clear and transparent, non-toxic, strong and flexible and insoluble in all hydrocarbons and non-aqueous solvents. This material is furnished in the form of solid slabs, which can be melted down, using water as a solvent, and applied as a free-flowing liquid that returns to solid form as soon as it hits the paper stock. An applied film becomes an integral part of the paper base and can be remelted, or rendered unmeltable, by suitable treatment.

The material is completely insoluble in aromatic and ali-

phatic hydrocarbons; primary, secondary and tertiary alcohols, esters and ketones; hydrogen, oxygen and other gases; animal, vegetable and mineral oils and greases. Though dispersible in water, it can be rendered insoluble in water after being applied as a thin film. Such applied films, however, are not completely waterproof and any prolonged exposure to water will cause them to swell and soften, so their main field of usage is limited to protection against non-aqueous materials.

Any paper container may be made oil-tight without change in design simply by coating its interior with a continuous film of such a material. The flexible coating may be applied by any known coating process. When heated to about 130 deg. F., it liquefies; it may be reduced to any desired viscosity by mixing with hot water. Warmed solutions may be applied by any method suited to liquids. Applied films may be "set" with heat or cold and can be rendered non-meltable by suitable treatment.

Fast coating with one application has been obtained with fountain sprays of the Eureka type (Fig. 6). Coating machines of this type will coat one large drum at a time or as many as 24 small containers. The containers, after one end has been attached, are placed over the fountain heads and flood-coated with the protective solution. After brief drainage, the other end is attached.

If the ends are of metal, the manner of closing the packed container is the same as for an all-metal container, the same tools being employed. All-paper containers are closed, after filling, by means of heat and pressure, using the coating as a sealing agent. This permits the use of a cellophane sheeting as an inner drum-head seal for all types of paper-bodied containers. A sturdy push-on outer end is usually employed to protect such inner seals. Various types of containers that have

* Director of Research, Thomas W. Dunn Co., New York.



3



4



5

3—Two successful paper oil containers: left, the milk-bottle type with metal clip closure; right, spiral-wound tube with paper ends (same as shown being filled in Figs. 1 and 2). 4—This paper box for petrolatum hair dressing is made on standard folding-box machinery. Coated paper boxes are widely used for this type of product, which is packed warm. Flexibility of coating is important. 5—This is a cylindrical container made entirely of paper with a heat-sealable lid which is warranted by the manufacturer to hold a vacuum.

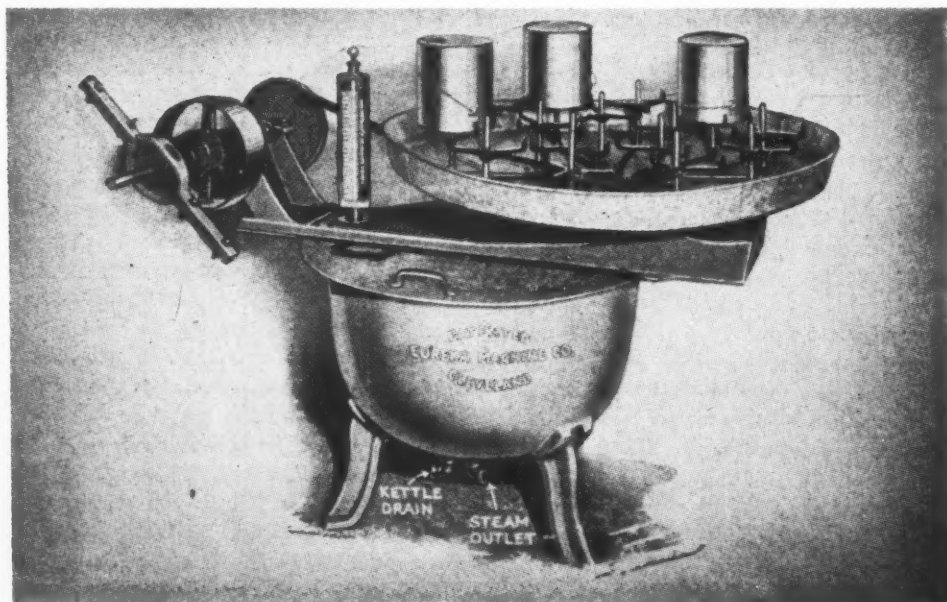
been flood-coated with these greaseproof films are illustrated.

Set-up paper boxes may be made oil- and grease-tight on available equipment when coated paper is used as the protective liner, and a coating solution used as a pour or brush-on seam filler.

Tube-bodied containers for oil or grease can be made with available equipment. When the second ply of the body lamination is a sheet of unsized paper stock drawn through the coating solution, it becomes an oil and grease barrier. Oils will penetrate the inner ply but will not penetrate beyond the impregnated paper. After tubes so made have been cut to container length, their ends are dipped or otherwise coated with the solution. This completes the essential continuous film that gives the container the necessary protection.

Paper tubes may also be lined on tube-winding machines with vegetable parchment, cellophane or other oilproof papers. If ends are coated with the solution before attachment of paper or metal ends, properly made containers will be oil tight.

Several machines for the manufacture of liquid-tight containers of paper have been built. Most of these form paper-stock blanks into containers for milk. One machine of this type (Figs. 1 and 2) was recently modified to produce, fill and hermetically seal an all-paper container for motor oil (Fig. 3, right) starting with a blank of paperboard. The paper container for motor oils shown in Fig. 3, left, is another type; it is one of several that have held motor oil for several years without leakage. It is lined with greaseproof coating.



6

6—Fountain-spray equipment suitable for coating interiors of containers. It will handle at one time one large drum or 24 small containers.

7—New envelope container has plastic coating outside, heat-sealing greaseproof coating inside. A single machine forms container, heat-seals edges, coats interior and dries it, fills and heat-seals top. It can be made in sizes from 2 oz. to gallon.



The package illustrated in Fig. 7 is a new postwar type of package that lends itself to machine coating. The package is formed from a paperboard blank on a machine that also coats, dries the coating, fills the container and then seals it by means of heat and pressure. It combines the advantages of a flat bag with the rigidity of a carton. It will carry any product that will not penetrate the coating. The machine that makes it is built to handle all types of containers.

Disposable, non-refillable containers for lubricating oils and particularly motor oils can be made from paper protected with an interior coating. Containers made of tinned sheet metal are relatively expensive, difficult to seal because of the tendency of oil to creep on the metal surface, and difficult to dis-

pose of conveniently. Moreover, when such containers are emptied, a considerable portion of the oil remains within them due to its high attraction to the metal surface, entailing waste.

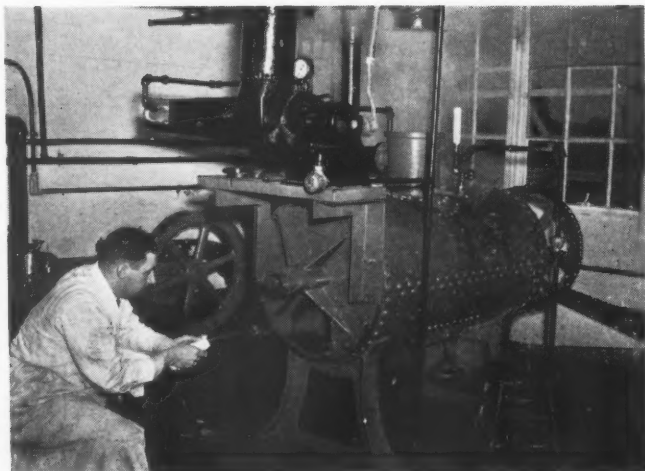
Any hydrocarbon can be packaged in paper, including gasoline, benzene, kerosene, spindle oil, petrolatum and medicinal salves made with petrolatum as their base; mineral oil greases, toluene, xylene, naphthalene, ethylene and its homologues; cyclohexanes, turpentine and even gaseous hydrocarbons.

Peanut butter, linseed oil, hydrogenated cottonseed oil, lard and the higher fatty acids such as stearic acid may also be packed in properly coated paper containers.

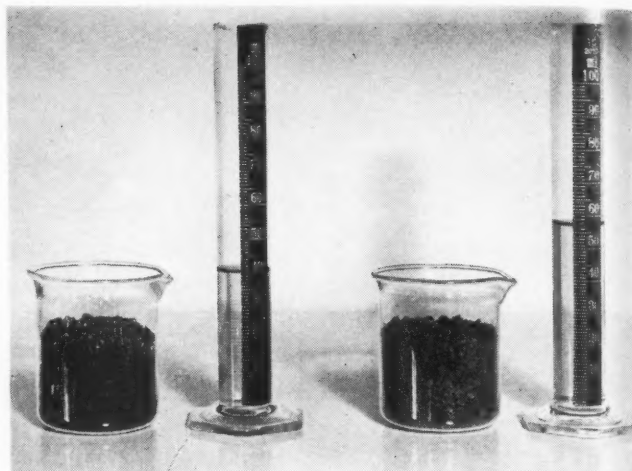
The "rolled" seams that attach (Continued on page 154)

8—This container can be made at high speed on paper milk-bottle machinery, and when properly coated and heat sealed with a hood closure, will hold oily liquid. This test container, with cellophane top, has held vegetable oil for three years. 9—Fibre-bodied metal-end drum closed with standard metal drum closing equipment. In sizes up to 55 gal., it is suitable for greasy or oily product when inside coated. 10—Inside-coated 5-gal. drum with wooden plug top for lubricating greases. Paper liner and metal ring effect seal.





1



2

1—Vacuum rotary method of dehydration was found most desirable for meat. Auxiliary attachment at top center is combination heater and blower for forcing heated air into drier during pre-cooking stage of operation. One step in cleaning machine is shown. 2—Relative amounts of water absorbed in rehydration by pork dried by drum cabinet method (left) and by vacuum rotary method. Both samples are from same lot of raw meat.

Dehydrated meat . . . a report on packaging studies*

Early in 1942, soon after the United States entered World War II, the Department of Agriculture recognized the possibilities offered by the successful dehydration of meat. The world food situation already was becoming acute. Clearly the development of practical methods for producing dehydrated meat of satisfactory quality would lead to substantial savings in vital shipping space and weight. The possible need to employ air transportation for food, both during the war and afterward, presented problems for consideration also.

Under the circumstances, the problem of dehydrating meat successfully called for intensive research to be conducted with all possible dispatch. Investigators of the Department's newly organized Agricultural Research Administration, which comprises the principal research bureaus, undertook the work as an emergency project. Representatives of the meat industry and officials of the armed services and lend-lease agencies were brought into consultation.

Besides dealing primarily with processes of dehydration, the investigation included studies of packaging, storage, chemical and bacteriological changes, compressibility, rehydration, and, in addition, the nutritive value and palatability of meats.

Eight methods of dehydration, embodying mechanical features that had proved to be successful with other products, were tested. Special attention was given to adaptations that would make the methods most suitable for meat. Of the various processes studied, the vacuum rotary gave indications of combining the most good points.

On the basis of boned, trimmed, fresh meat, dehydration saves approximately 60 to 70% in weight. Reduction in volume, when the dehydrated product is properly compressed, is about 65 to 73%.

It was found that containers to be used for dehydrated meat should protect against light and vermin, including in-

sects, and be able to withstand rough handling and temporary immersion in fresh or salt water.

They should also exclude air and moisture-vapor and should be impermeable to fat; resistant to the transmission of foreign substances, odors or flavors; light in weight; compact and easy to handle, and available under war conditions.

Strength, lightness and compactness are essential when shipments are to be made to places where modern transportation facilities are limited and reliance must be placed on primitive transportation—pack animals, for example. Rectangular containers make full use of all space, whereas approximately one-fifth of the shipping space required by cylindrical containers remains unoccupied. In wartime, the availability of suitable packaging materials is an important consideration in the selection of packages. Steel and tin for cans are limited, and manufacturers of paper and metal-foil containers have experienced difficulties in obtaining suitable paper stock, laminating and adhesive materials and metal foil.

A study of many kinds of metallic and non-metallic packages in relation to these factors was made. The experiments were conducted both at the Beltsville Research Center, Beltsville, Md., and in cooperation with the University of Chicago and the American Meat Institute at Chicago, Ill. As a means of evaluating different containers, such determinations as peroxide value (indicating oxidative action), free acidity, moisture, gas analysis and palatability were made. Samples of dehydrated meat were stored at temperatures of 0, 50, 70, 110 and 135 deg. F. For studies of moisture absorption at temperatures of 50 to 110 deg., a constant relative humidity of 80% was maintained.

Tests with metal cans

When high-quality samples of dehydrated meat containing fat of good stability were packed and stored in cans at moderately low temperatures, they had excellent keeping quality. After two to four weeks of storage at 110 deg. and 135 deg. F.,

* Presented through the co-operation of the Committee on Dehydration of Meat, Agricultural Research Administration, U. S. Dept. of Agriculture.

the samples developed a flavor resembling that of cured meat and the color became a marked red. After six months of storage at 135 deg., samples of canned dehydrated meat developed a scorched or overcooked flavor, and samples at 110 deg. developed an overcooked flavor in 11 to 12 months. But those samples stored at room temperature and under refrigeration had changed little in flavor or color at 12 months of storage.

No difference was noted in the keeping quality of meats packed in hot-dipped tin-plate cans (1.25 lbs. tin per base box), or Bonderized cans. When the dehydrated product was of good quality, samples air-packed in cans were practically as good as those packed in vacuum or nitrogen in the same kind of container.

Tests with paper and metal-foil packages

A representative group of paper and metal-foil packages was studied with a view to determining their suitability as substitutes for cans. The materials, laminating agents and sealing compounds varied with different makes of bags, which were of the envelope type—flat bags which when opened become containers with rectangular sides. These bags were approximately $5\frac{1}{2}$ by $8\frac{1}{2}$ inches in size and when filled were fitted into cartons.

A brief description of this class of containers follows:

- A. 55-lb. laminated glassines; heat-sealed tops and bottoms.
- B. 25-lb. glassine, 300 moistureproof anchored, heat-sealing, transparent cellophane; two side seals.
- C. 45-lb. opaque glassine and 300 moistureproof, anchored cellophane laminated together with the cellophane inside; two side seals.
- D. A double thickness of 450 moistureproof, anchored cellophane laminated together; two side seals.
- E. Asphalt-impregnated kraft, 0.0005-in. lead foil, and 300 moistureproof, anchored cellophane laminated together with the cellophane inside; two side seals.

Many other special packages were tested. Some had stitched closures; some were wax dipped; many were fabricated with special laminating agents and heat-sealing compounds.

A thorough study of the five types of paper and metal-foil packages described showed types A and B to be unsatisfactory. Types C, D and E, when fabricated with suitable laminating and heat-sealing materials, were the best substitutes for cans. Package C was improved when 55-lb. glassine

and 450 moistureproof, anchored cellophane were used. The best over-all results, for these classes of containers, were obtained with package E.

Many containers of types C, D and E were filled with dehydrated pork and stored at temperatures of 0 to 135 deg. F. In general, packages C and D held the meat in good condition at 110 deg. and 80% humidity for four to six months, when the experiment was terminated. Container E was satisfactory up to six months of storage under the same conditions.

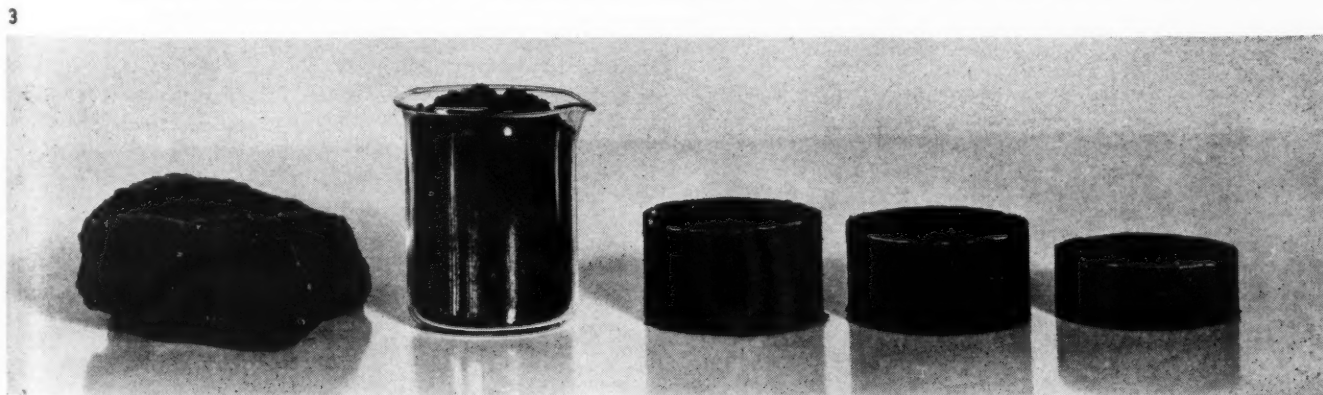
A number of packages of all kinds were stored at alternated temperatures, a method of testing known as cycling. Some were cycled between 0 and 110 deg. F., and others between 50 and 110 deg. All were alternated on a 24-hour cycle. The relative humidity on the 50 to 110 deg. cycle was 80%. A majority of the containers cycled at both ranges failed after 45 to 55 cycles. Apparently the temperature variations caused the different layers of the bag material to contract and expand at different rates and to different degrees. The stresses thus developed caused separations at the heat seals and tearing of the material. The packages would probably withstand natural temperature variations for a longer period before breakdown.

Tests of different types of packages showed that to prevent oxidation of the fat and absorption of moisture, dehydrated meat must be packed in airtight containers. A good-quality product, signifying one in which little or no oxidation has occurred, was capable of absorbing, without appreciable deterioration, the small amount of oxygen sealed in the container when the meat was packed in air. However, the transmission of additional air through containers that were not airtight accelerated oxidation.

Gas analyses

A number of gas analyses were made of dehydrated pork and beef packed in tin cans and sealed in an atmosphere of air, and also of pork packed in other types of containers. In dehydrated pork packed in cans the oxygen content of the gas decreased from 21% to 1% in $2\frac{1}{2}$ weeks at room temperature, and then slowly decreased to 0% in 10 weeks. At the same time the carbon dioxide content of the gas increased to 1.5%. In cans of dehydrated beef, the oxygen decreased to 1% in $8\frac{1}{2}$ weeks and to 0 in 14 weeks, and the carbon dioxide content of the gas increased to 3.5%. When gas analyses were made on samples of pork stored in paper and metal-foil containers for three months or more, many were found not to be oxygen tight. Package E was the most resistant to oxygen penetration, but 50% of the (Continued on page 146)

3—Left is the raw unground pork before processing; next is the dehydrated, uncompressed equivalent; then are shown the same amounts of dehydrated pork compressed at 100, 300 and 600 p.s.i., respectively.



QUESTIONS and

Answers



This consultation service on packaging subjects is at your command. Simply address your questions to Technical Editor, Modern Packaging, 122 East 42nd St., New York 17, N. Y. Your name or other identification will not appear with any published answer.

Container for free-flowing powder

QUESTION: *We are manufacturers of chemicals. Recently our laboratory has discovered a by-product which has proved to be an excellent household cleaning preparation. This material is a free-flowing powder, and eventually we would like to package it in a metal can with a shaker-top dispenser, but at this time we must use something else. What are the possibilities of paper with metal ends or should we use a folding carton with perforations for shaking? Is there any way to prevent sifting if such a carton is used?*

ANSWER: Your product is very finely divided powder and apparently you do not know whether it is affected by the addition of moisture in storage. In any event it will not be very difficult to obtain a proper package for this product. I suggest you get in touch with some of the fibre can companies who have produced a successful all-fibre and fibre-wall metal-end dispensing package for household cleaning powders. Usually such fibre packages give little or no protection against moisture-vapor migration, but some such protection can be added for the proper protection of your particular product.

You should also get in touch with a progressive carton manufacturer or the National Folding Box Assn. who have details concerning the packaging of such a product in a folding carton. Such packages have also been developed with perforations. The matter of sifting is taken care of by precision in the manufacture of the carton and careful control in the gluing and the closing of the flaps. There have been various patented means for making corner constructions which are supposed to be entirely sift proof. Here again the Assn. or your own carton supplier probably can be of service in obtaining samples of various constructions and giving you the background and data on such packages.

Protection for tooth powder

QUESTION: *We have been receiving many complaints from users lately saying that our tooth powder has no flavor; like many other companies we have been forced to switch to all-paper containers. Do you think that the loss of flavor is caused by lack of protection of the paper container?*

ANSWER: Your letter does not give sufficient details as to the construction or type of your package, so it is impossible to judge whether or not the flavor loss is the result of constructional or material defects. In all probability your fibre package lacks an element which has the ability to prevent the migration of organic vapors. Your package should have a lining, ply or overwrap of either cellophane, glassine or parchment to retard the migration of your flavor ingredients. Either one of these three materials, if properly ap-

plied as a part of your package, should so reduce the migration of all the flavors that you would no longer get these customer complaints. However, it is also advised that you check to see whether or not the flavor ingredient is being lost by volatilization and migration through the package wall; or by oxidation within the package. It is also possible that the flavor ingredients can be affected by a combination of moisture and oxygen. This can very easily be determined by making up sample packages with a variety of packaging materials including some of the three kinds of materials listed above, both with and without moisture-vaporproofness. If you have been using the same flavor before you made your package substitution, the probability is that the flavor losses are the result of migrations through the package wall which can be corrected by the additions of the materials listed above.

Disposal of surpluses

QUESTION: *We have a quantity of fibre case rejects which were made for the shipping of shells. Is there any packaging use that you can suggest for this surplus material? We also have a number of yards of fabric from which bomb fuse socks are made.*

ANSWER: Your inquiry is the first, but in all probability there will be a great many more concerning a means of using surplus war packaging material. It will be necessary in inquiries of this kind for the writer to give more details and specifications of the material before it can be evaluated properly for any commercial application.

The shell cases are very heavy in wall section, have top and bottom of black painted metal and the fibre side wall is also black. Furthermore the body is extraordinarily long for the diameter size. Because of the extraordinary length, it will be necessary to cut these bodies down for normal packaging use as a heavy-duty fibre can. However, I suggest that you advertise in some of the trade papers, for example, in the mechanical trade, to see whether or not you can find someone manufacturing precision material of some kind who could use these cases in their present condition and shape. It would appear that it would be both expensive and difficult operation to try to cut them down for normal fibre can uses. Concerning the fabric for bomb fuse socks, here again detailed specifications will be necessary before it would be possible to decide whether or not it has any packaging uses. Here again it would probably be advisable to advertise this item in some textile trade journal. It may be possible that some of the readers of MODERN PACKAGING have some ideas for the use of these materials. If so, their comments will be greatly appreciated.

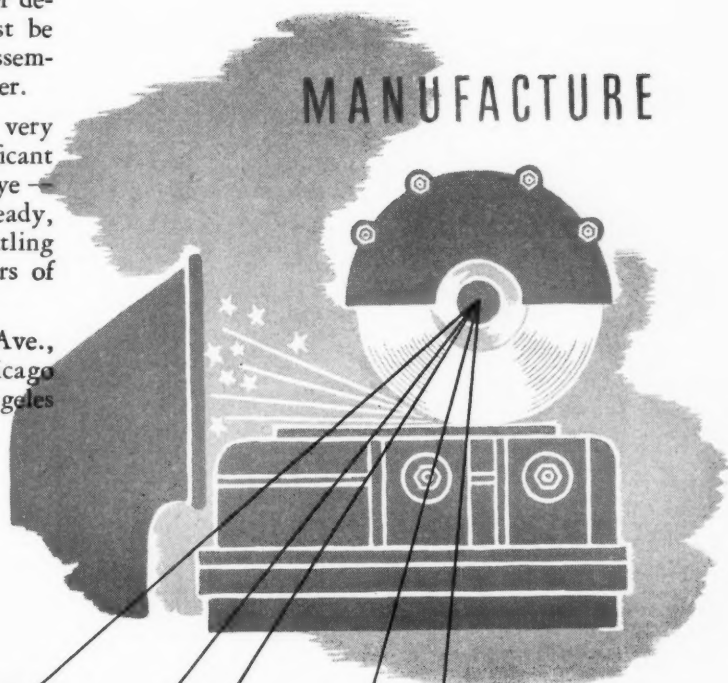
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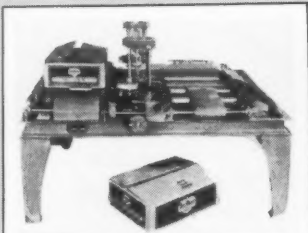
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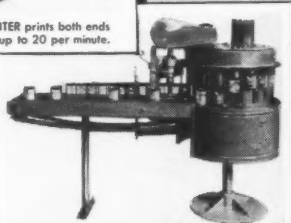
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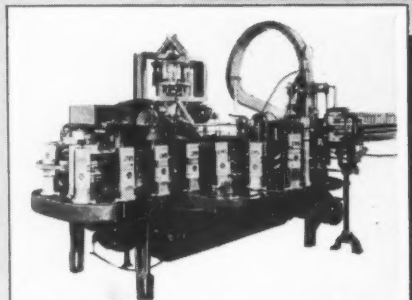
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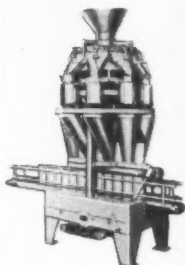
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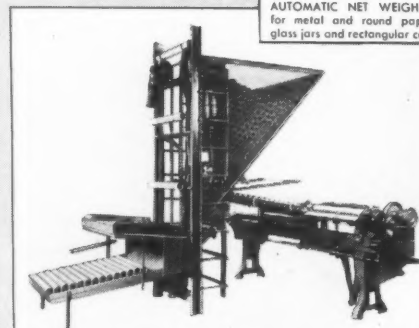
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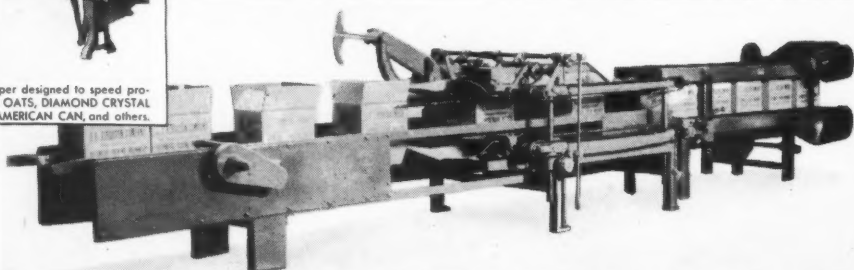
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You'll find interesting examples of PACKOMATIC packaging accomplishment pictured on this page . . . You'll get a more comprehensive idea of the scope of our production in the list of typical PACKOMATIC equipment below. You can learn more about PACKOMATIC and any *specific* suggestions or recommendations we may have for your company by contacting us at Joliet—or through one of our factory branch offices. You'll find them conveniently available—from coast to coast. *Consult* your classified directory.

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|------------------------|-------------------------|
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| Case Sealers | Auger Packers |
| Volumetric Fillers | Paper Can Tube Cutters |
| Net Weight Scales | Paper Can Tube Gluers |
| Carton Making Machines | Paper Can Shrinkers |
| Carton Sealers | Paper Can Cappers |

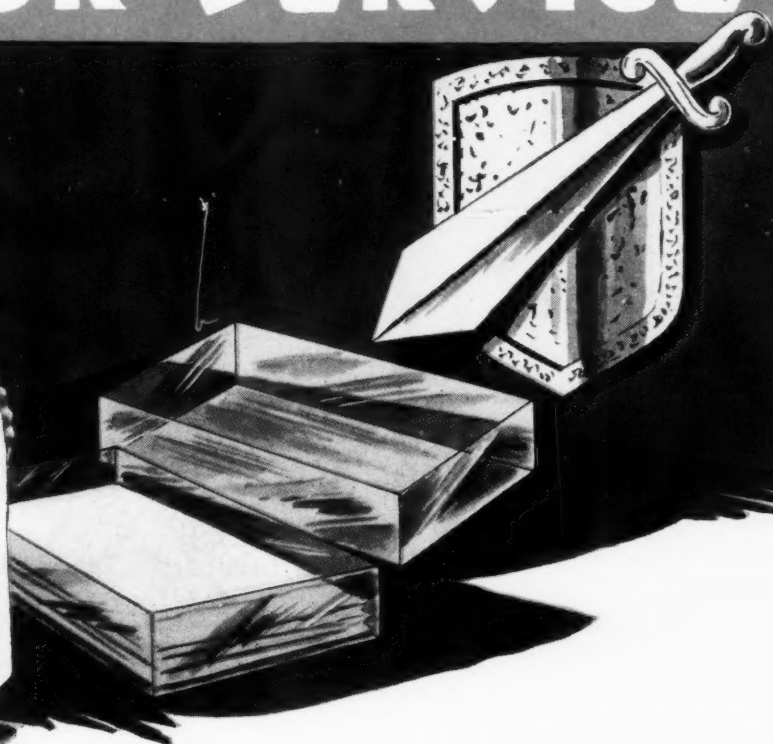
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• "I'm a manufacturer. But I'd feel the same way if I were a retailer or consumer. As quick as I can get 'em again *I'll pack my goods in cans* because cans seal out a bunch of headaches.

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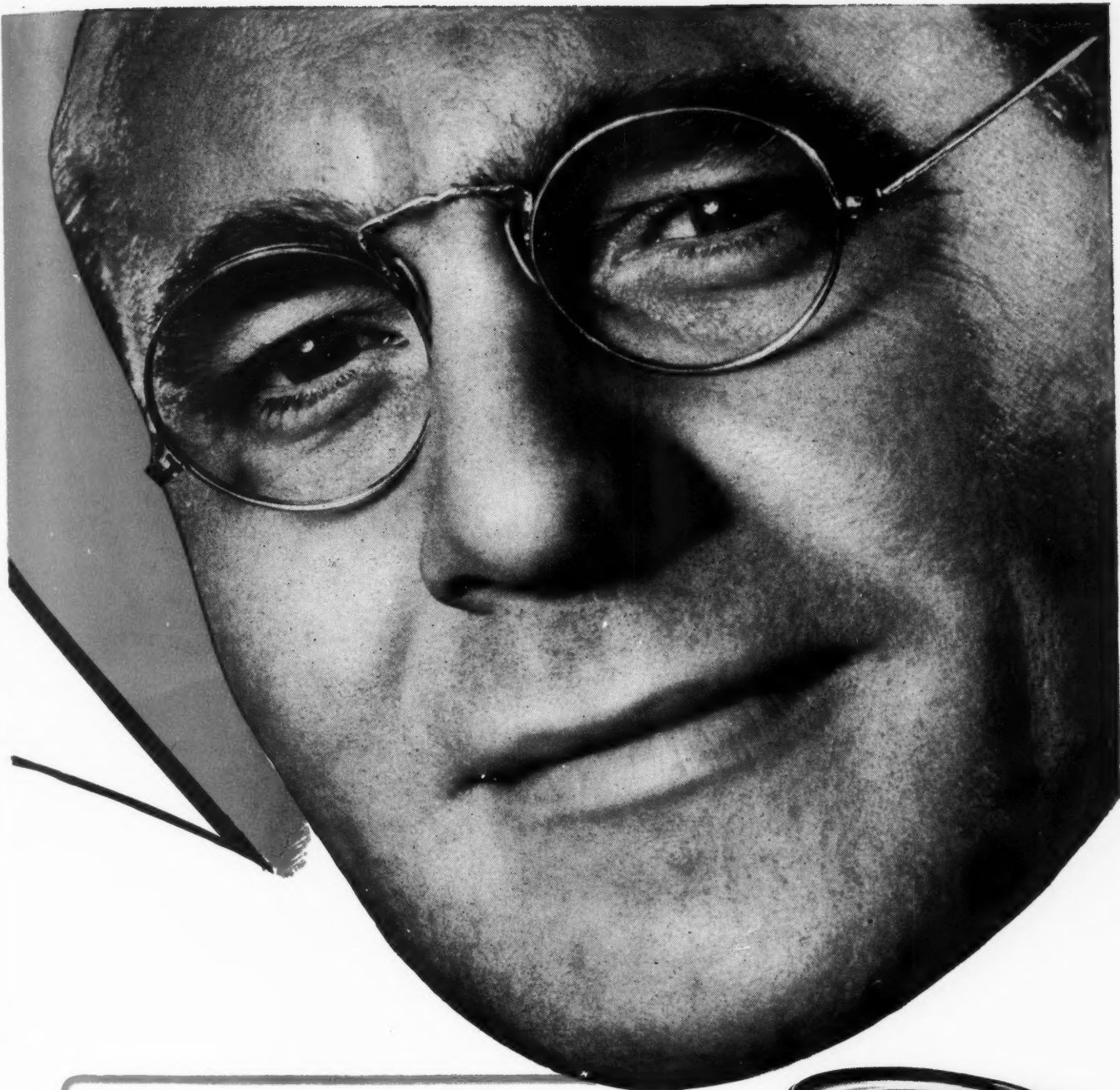
"I'm all for pleasing the public. And the public has always shown its preference for goods in cans."

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WASHINGTON REVIEW

R. L. Van Boskirk, Washington Editor

1945 Outlook for Packaging Materials

The New Year's prospect for packaging materials is on the bleak side. Gone is the blithesome optimism of last summer, when the war was sure to end any moment and all packages would soon resume their accustomed glamour. The cold and unpleasant truth is that the military situation has suddenly become tougher than any of us supposed. Tightening up has become imperative. For some months, at least, package users will have to continue on a makeshift-and-substitute basis.

In order to determine the present picture in all its exact realism, your Washington reporter interviewed a great many WPB officials in the Capital, to obtain specific facts about specific materials. There are some bright spots—but here is the picture in both light and shade. Shifts may occur momentarily, but few will toward relaxation.

PAPER: Present situation critical; likely to remain so as long as European war lasts and possibly until end of Japanese war. Raw material production not keeping pace with demand because of shortage of manpower in the woods, although the curve of production as of December is static. Utilization of war prisoners and mechanization in the woods has helped to increase pulpwood output. Restrictions now in force:

- L-279 Shipping Sacks
- M-286 Glassine
- L-261 Grocery Bags
- M-351 Waxed Paper
- M-380 MVT Barrier

WPB will try to maintain restrictive orders at the status of December, 1944.

WAXED PAPER: Compared with the general paper situation, status of some of the specialized types such as waxed paper is considered fair. Prospects are that it will continue tight but not critical. Long-term prospect depends on fluctuation in military requirements. At present approximately 7% is being used for military purposes and 93% for civilian needs. Raw material production appears to be keeping abreast of demand. M-351 is the only order governing, and there is little prospect for further restriction. Provisions in M-351 which limited the petroleum wax content were withdrawn December 4.

CONTAINER BOARD: Very critical as to present availability. Situation would be even tougher were it not that civilian organizations are doing an excellent job in

salvage. Salvage is keeping within 90% of its goal, so jute is holding up its end. Production of virgin kraft is bottleneck, and just now this is subject to "dips" because of water in the woods and the fact that pulp production has been removed from the production urgency list. This material is used to the extent of 25% for direct military purposes; indirect military and lend-lease accounts for 25% more, and only 50% of the supply is thus available for civilian purposes. There are no restrictive orders on production, but M-290 controls distribution. No prospects for further restrictions, but relaxations will come only with V-E Day.

BOXBOARD: Likewise critical, with little prospect for any change until V-E Day. Percentage used for military purposes not available, but Order M-378 requires a 40% set-aside of board for needs of Government procurement agencies. Curve of raw material production is level, but not keeping pace with demand. No further restrictions are contemplated.

CORK: About 20% of total imports goes for packaging, and an additional 4% for stoppers. Availability depends entirely on import situation, which at present keeps raw material supply in step with demand. No complete interruption of imports is expected, but stocks should be conserved because crop season is at its low point during last and first quarters of year, transportation facilities in countries of origin are badly demoralized, and imports will decline in the next five months. Stocks

were heavily drawn on some months ago when bottoms became available, so our imports moved up very noticeably. Strict military purposes use 30% of supply, indirect war uses call for 25% more, leaving 45% for civilian purposes. Of this 45%, half is highly essential, the other half is reasonably essential, and less than 1% goes for non-essential uses. Order M-8-a controls allocation. There are no other restrictions in force and none contemplated.

ALUMINUM: Situation is now fair, with excellent prospect for remaining so. Production is well abreast of demand; ingot capacity is satisfactory; there is plenty of rolling capacity, but there is a need for skilled manpower. Military needs take 95% of all aluminum supply at present, but this leaves a comfortable margin for civilian packaging. Raw material production has been cut back designedly to conserve manpower. There are no restrictions on uses of aluminum (Order M-1-k was revoked in August), but it must be obtained under CMP. Because military demands will fluctuate, producers and fabricators are allowed to accept "Z" orders (lowest essentiality) to fill in and keep busy when cutbacks come. Unless unexpected uses develop—and there have been some—aluminum may become one of the most readily available materials.

COPPER: Has become extremely critical, with prospect of remaining so for at least six months. Production is keeping pace with permitted uses. There is plenty of raw copper, but manpower and facilities

are limited. Military needs, direct and indirect, take practically the entire supply. Order M-9-c controls, and supplies are obtainable only under CMP. Present stockpile will be hit hard by increased military needs. No relaxation of restrictions is likely; on the contrary, look for increased restriction.

LEAD: Supply situation has just turned critical, and current military demands indicate it will remain so for the immediate future, with an improvement as a long-term prospect. Production is not currently keeping pace with demand because of manpower shortage. Military purposes take 90% of supply. Order M-38 controls uses, but there are likely to be some severe and immediate additional restrictions.

STEEL: Comfortable position of last few months is very likely to change soon due to military situation, although no increase in restrictions is indicated. For packaging, Order M-81 (metal cans) and CMP are the only controls. Relaxations are unlikely because of manpower shortage as well as military needs.

TIN: This metal will remain under control probably longer than any other material, for we must recapture Singapore from the Japs before there is any real relief to the present critical shortage, and even after that there will be considerable delay before the mines are rehabilitated. Of the present stocks, virtually 100% is pre-empted for military and highly essential uses, with practically none going for non-essential purposes. Production curve is steadily down, and by no means keeping pace with demand. Orders in force are M-43, M-81 and M-115, with every prospect pointing to continuation of restrictions.

ZINC: Plentiful present stocks, with even more easing up in the immediate future and continued easy situation for the long-term prospect. Production is easily keeping pace with demand, though the curve is moving downward on account of manpower shortage. Consumption of the material is normal. Orders in force are M-11-a, M-11-b and M-11-L. Some relaxation is possible.

NATURAL RUBBER: Very critical at present, continued critical for near- and long-term future. Virtually 100% of supply will go to military uses, with production far out of line with demand. Order R-1 is still in force, with every prospect of further restriction.

SYNTHETIC RUBBER: Plentiful supply for essential uses, with near-term prospect of stocks fully adequate for essential uses, and long-term prospect even better. Production is fully abreast of de-

mand and curve is up. The rated capacity of all Government-owned synthetic rubber plants is 827,000 long tons, and production through June, 1944, was 555,400 long tons.

Order R-1 governs use of synthetic rubber for essential purposes, and present situation warrants belief that packaging needs will be supplied.

PLASTICS: Acrylics—Supply situation fair, continued fair for near term and improvement for long term. Though present production curve is up, it is not keeping pace with demand, and 98% of the material goes for military needs. Order M-300 applies. There is no prospect for any immediate change, but the outlook favors possible future relaxation, depending on the raw material situation.

Cellophane—Situation fair at present, with prospects for remaining so. The cellophane order L-20 was relaxed December 5 to lift quota restrictions on use for packaging, wrapping or sealing of tobacco products and bakery products. As it is, 50% of the material goes for military purposes, and production does not keep pace with potential demand because pulp production is a limiting factor. There appears to be no immediate prospect of other changes in control orders.

Cellulose Acetate—The raw materials—acetic anhydride, bleached cotton linters and plasticizers—are the controlling factors in this situation. At present the outlook is fair and the prospect is that it will remain so. Approximately 40% of the material goes for military uses. Though the production curve is up, it doesn't keep up with demand, hence control order M-300 will remain in force. There is no immediate prospect for either further restriction or relaxation.

Ethyl Cellulose—Approximately 85% of this material goes for military use. For those purposes, production is keeping pace with demand and the situation promises to remain fair, but large pending military requirements may result in a critical situation at any time. Order M-300 governs, and there is no immediate prospect for change.

Phenolics—The raw materials, formaldehyde and phenol, are both very tight, although the production curve is up. Nevertheless, the situation is fair as to availability for military uses, which take 70% of the stocks. Order M-246 is in force, and if any change is made it will be in the direction of tightening up still further.

Polystyrene—Benzol is the controlling factor, and it is now going to ether and gasoline, so supply is not up to demand. Production curve is upward, but this plastic still is available only for military uses and highly essential civilian needs; military takes 75% of the stock. Order M-300 controls polystyrene, and there is no immediate prospect for any change.

Vinyls—Picture is a little brighter here.

Production facilities have increased. Curve is moving up, but still is not keeping pace with demand. Military needs absorb 90% of the supply. Order M-300 governs.

Urea—This plastic uses formaldehyde, which is now tight because the methanol productive capacity has been diverted to turning out ammonia, highly necessary for explosives. Supply is fair, with some prospect for long-term improvement. Supply is not up to demand, though curve is moving up. Military needs take 65% of production. Order M-300 controls, with little prospect of change.

ADHESIVES, COATINGS, etc.: Starches

—Stocks are plentiful; demands are easily met, and production is increasing. Corn starch is freely available, but tapioca supply is shrinking more and more because imports from foreign sources are practically negligible. There are no restrictive orders governing corn starch, but M-333 covers tapioca. No change is expected as to control orders.

Casein—Situation is fair and promises to remain so, even though curve of production is downward and it is a question whether production of raw materials is keeping pace with demand. Domestic production still continues to be very low, and our country leans heavily on shipments from Argentina. Military needs take 35% of the supply. Order M-307 governs, and no change is contemplated.

Animal Glues—In fair supply at present, though imports of the raw material—bones and hide trimmings—from Argentina, the only large source, are becoming scarce. Military needs call for 60% of this material. Supply curve moving down and not keeping pace with demand. Order M-300 governs, and no changes are expected.

Protective Coatings—Packaging uses only a small percentage of these materials—probably not more than 5%. Production generally is keeping well abreast of demand, and the curve is moving slightly upward. Disposition of WPB is to grant full use for foods, drugs, pharmaceuticals and insecticides, even though military needs call for 65% of the production. Order M-382 covers, and status quo will probably be maintained.

FOLDING & SET-UP BOXES: Present situation critical, with prospects of remaining so; any improvement seems a long way off. Production curve, which is level, is considerably below possible demands. Military needs are provided for by a 40% set-aside which every board manufacturer must observe. Orders in force are M-378 on board and L-239 on boxes.

SPECIALTY FLEXIBLE CONTAINERS: Manufacturers in this industry have accomplished an unusual feat in conservation by producing approximately 24% more packaging units with a normal

amount of raw materials. Films used in manufacture are critically short, although the prospect is that the months ahead will not be as severe as the six months just past. Military uses for all war agencies require 34% of the output. Production of the raw materials does not keep pace with needs, though in terms of yardage it is moving upward. Order L-305 applies, and no further restrictions are anticipated—but no relaxation, either, until after V-E Day.

GROCERY & VARIETY BAGS: Users have been among those suffering most severe curtailments because of the critical situation of material, and nothing appears in the future outlook except a continuation of that condition. Production is static, not keeping up to needs. Military uses, including indirect and war agencies, call for only 12% of the output, but no easier supply will be experienced until pulp is in better condition. Order L-261 is in force, and no additional restrictions are thought likely.

PAPER SHIPPING SACKS: Critical now and continued critical, for near future as well as long term. Uses are limited by Order L-279, so that raw material production is kept in step with permitted needs. These are mostly military, accounting for probably 80% for direct and indirect purposes. Production is maintained at an even level.

CORRUGATED AND SOLID FIBRE CONTAINERS: Critical at present, with no change in sight. Production in arrears of demand, and curve downward. Orders in force: L-317, D-146, M-290. No additional restrictions are in the offing, and certainly no relaxations.

FIBRE DRUMS: Picture as to availability is rather encouraging, with present supply reasonably plentiful and in prospect of easing up still more. Sour note is fact that though production curve of raw material is slightly upward, demand has increased much more. Order L-337 applies, with no additional controls in sight. No relaxations possible until after V-E Day.

TEXTILE BAGS: Serious shortage of cotton textiles with a declining production curve make textile bags highly critical, with little prospect for improvement in sight. Order M-221 governs uses of both new and second hand, but there are no restrictions on the latter and apparently they are readily available.

METAL CANS: Availability situation fair at present for essential needs, but there is still an insufficient quantity for supplying many possible uses. Depending on manpower, there is a prospect for a slight easing up in the short-term future. Except for tin, production is keeping pace

with the restricted demand, and production curve of all materials needed except tin is moving up. Order M-81 controls uses, which are all essential and divided about equally between civilian and military. Any relaxations that come will be in steel only.

STEEL DRUMS: The situation as to fabricated drums is still fair, though the raw material (sheet steel) of which they are made is just now becoming tighter. Prospect therefore is that drums will soon be in the critical class. Steel of course is under CMP and drums are controlled by L-197, which sees to it that roughly 60% to 80% of tonnage goes for military purposes. Steel pails are now definitely short, and the situation may become serious due to labor shortage and increased military needs.

COLLAPSIBLE TUBES: Tremendous military demands, calling for 60% to 70% of output, explain why this form of package is critical in supply, with no near-term prospect of easing up. Tube manufacturers, from the start of the emergency, have cooperated well with Government in making a very limited supply of raw materials go a long way. Just now, although aluminum is easing up tin is practically unobtainable and lead is sliding off in production. Order M-115 applies, but added restrictions may be necessary if military needs continue at present levels.

GLASS CONTAINERS: Situation as to availability is good at present, with prospect for its continuing so, although that will depend on manpower. There has been no shortage of raw materials, and the fuel shortage is improving. Production at maintained levels is keeping pace with demand. Only 20% of the output is needed for military purposes, leaving a substantial 80% for civilian uses. Orders in force are L-103 and L-103-b, with reasonable prospects for further relaxation in the not-too-distant future.

CLOSURES: In plentiful supply at present, adequate to meet demands. Except for tinplate, there appears to be no trouble ahead. There will even be enough tin to do imperative jobs when the nature of the product requires it, but substitute coatings such as Bonderite and lacquers have been serving well. As with glass, military needs take 20% of the output. Order L-103-b controls, and there is a good prospect for further relaxation not long hence except for use of tin.

WOOD BOXES: Order L-232 controls nailed wood boxes, wire-bound boxes, and plywood containers. These are all critical in supply, with the possible exception of plywood, which might be considered fair. There is little prospect of a change, due

to shortage of wood and manpower. Direct and indirect military needs call for 70% of the supply of nailed wood boxes, 35% of the wire-bound and 75% of the plywood. Production is not keeping up with demand, and the curve is down slightly. Little prospect for any relaxation of restrictions, but hope is to maintain status quo.

BASKETS, HAMPERS & CRATES: Situation only fair, demand being met on a hand-to-mouth basis, with no improvement in sight in near future. These containers are scarcely used at all for military needs, and the production curve is level. Order L-232 applies, and no change is expected.

SLACK COOPERAGE: Short is the supply and short is the outlook, to remain so until lumber and labor shortage is eased. Curve is downward for production, and demand is way ahead of supply. Military needs take 20% of output. Order L-232 governs, and status quo will be maintained.

TIGHT COOPERAGE: Present situation fair, with prospects of further easing up, especially if L-197 is relaxed (and there is some chance of it) to provide more steel drums. Just now, although the curve of production is down, supply is up to demand. The proposed new "whiskey holiday" will bring increased demands. Order L-232 forbids certain uses, though military needs don't call for any of these barrels.

WOODEN BEER BARRELS: Fair as to availability now, but summer season will see a very short supply available. If other types of barrels such as aluminum kegs become more available, demand for the wooden type will ease. Considering Post Exchange business in the civilian class, this container goes 100% for civilian needs. There are no control orders governing, and none contemplated.

MACHINERY: The situation is still critical, and likely to remain so. Materials are easier now, but manpower is still a problem and most of the manufacturers are still deeply engrossed in direct war work. The only regulation now governing, since revocation of L-332, is CMP, under which the regular procedure is to check with the local War Manpower Commission so as not to tie up labor on unnecessary work. Machinery manufacturers, for whom the normal time lag between placing of order and its delivery is three months, now have a back-log of ten months work ahead of them, although at present production seems to be gaining on demand. Direct military needs call for only 10% to 15% of output. Little chance for liberalization of CMP control until the military situation shows improvement.

Equipment and Materials

HEAT SEALERS

Developed specifically for heat sealing large, moisture-vapor barrier bags of Butvar, Reynolds A-10, A-12, A-14 or A-16, MST Cellophane and other similar heat sealing materials used for war export packaging, Simplex Wrapping Machine Co., Oakland, Calif., has announced its hand-clamp bag sealer which is said to be fast, efficient and easy to use.

The unit is approximately 8 in. long overall, 3½ in. wide and 4 in. high, with a ¾ in.-wide sealing surface. Pressing a thumb lever opens two opposing sealing jaws (6 in. long), each of which is heated with inner cartridge heating elements; releasing the thumb causes spring tension to close the jaws on the bag top. To seal, the operator slides the unit across the bag top and heat penetrates from both sides. Temperature of the sealing jaws is controlled by an adjustable thermostat. The sealer works with the bag top vertical, and can also be used for making and sealing the sides of "blankets." Net weight of unit, approximately five pounds.

Another new development is the Adjustaheat Sealer for all types of heat-sealing materials by Pack-Rite Machines, Milwaukee, Wis. This device incorporates many desirable features, such as a thermostat to provide a wide range of heat; brass-sheathed heating elements, running the entire length of the sealing bars; choice of three sealing impressions—vertical crimp, horizontal crimp or flat seal for heavier materials. Available in 8 in., 10 in. and 12 in. foot pedal or table models.

HOOD SEAL FOR WINE JUGS

Standard Cap and Seal Corp., Chicago, makers of the welded wire hood seal for milk bottles, has announced a new type of hood seal for half-gallon wine containers. The new hood seal—a paraffin-coated paper hood locked on with a welded wire—is adaptable for use on jugs closed by metal or plastic caps, or flush-type corks. Not only are the new hoods air- and moisture-resistant, but they come in various colors and can be imprinted with brand identification, trademark or sell copy.

WATER-RESISTANT ADHESIVE

V-Seal 27, a specialty adhesive for sealing asphalt paper used for wrapping parts for overseas shipments, is being offered by Stein, Hall & Co., Inc., New York. It may, of course, also be applied wherever the use of a tacky, water-resistant adhesive is indicated.

The company states that the Corps of Engineers has approved this adhesive as a seam gum on bags for shipping Army goods overseas. It is also stated that the product meets Army specification 100-14A for types C, L and M paper, and specification AXS 1074 for both grade A and grade B types of adhesives.

The product is supplied ready for use and may be diluted up to 20% with water, depending on the nature of the work. It is said to take dilution readily and to remain stable for months.

RESIN FOR LOW-PRESSURE LAMINATION

Monsanto Chemical Co., St. Louis, Mo., announces development of a new synthetic resin which when used in a low-pressure lamination process will make possible fabrication of items considerably larger than those produced by mass production at present. Currently the output of this resin is restricted to military uses, but postwar applications might well be re-usable crates and drums, machine housings, trailer bodies, etc.

SPECIMEN TABLE

Taber Instrument Corp., North Tonawanda, N. Y., has announced a new type of special table for their abraser that permits testing paper products in moist or wet condition. This specimen table holds a sufficient amount of water to cover the

specimen when performing "wet tests." The wearing action is performed by dual Calibrase wheels bearing against the specimen, under constant pressure, revolving in opposite directions. Each wheel revolving at a steady constant speed through contact with the specimen exerts a combined abrasive, compressive and twisting action twice in each revolution of the specimen holder. Because the specimen holder travels a complete 360-deg. circle, the wear due to differences of grain or weave is fully revealed. A load adjustment is provided for varying the pressure of the Calibrase wheels against the specimen so that delicate and tough materials are tested with equal precision. Results of tests are reported either numerically as the number of "wear cycles" to produce a given amount of wear, or as "loss in weight" when weighed on a precision laboratory balance.

The abraser is self-contained and operates by plugging into an electrical line. Simplicity of operation and calculation make this instrument ideal for laboratory tests and sales demonstrations. Further information is available by writing Taber Instrument Corp. for Bulletin 4012.

AUGER PACKER FOR POWDERS

Triangle Package Machinery Co., Chicago, has developed a new, improved auger packer for filling and packing powdered materials of all kinds in quantities from several ounces up to five pounds. The machine is said to operate equally well with cans, bags, cartons and jars. Speed is 30 or more 1-lb. packages per minute, depending on product, degree of packing and the type of container which is being used.

By utilizing automatic feeding of the material instead of foot lever control, production is increased from 10% to 25% over previous models. Automatic operation is accomplished by means of a solenoid switch which releases the feed clutch when the container is raised to filling position. Another new feature of this auger packer is an electrically controlled emergency stop switch that enables the operator instantly to cut off the feed of material from the auger if anything goes wrong—thus preventing any possible waste of material.

Packing bowl may be removed instantly by loosening three nuts, an exclusive feature that saves time when the packer has to be cleaned for a change of materials. The unit is entirely enclosed for safety, protection from dust and neat appearance.

GREASEPROOF COATINGS FOR FIBRE CONTAINERS

Swift & Co., Chicago, has announced new grease- and oil-proof coating compounds suitable for coating the inside of fibre containers used for edible oils, shortenings and other food products. These coatings are available to manufacturers and are not restricted for most operations.

One of these new non-toxic resin coatings comes in a heavy fluid form and may be applied cold either by spraying or flushing. It air dries with no subsequent heat treatment nor is any specialized equipment necessary for its handling, the company states. It forms a transparent film impervious to oil and grease and has no taste, odor or color, the company further claims. Recommended for use in 5- to 50-gallon fibre containers.

This company also markets in 5-lb. cakes its Type IV Edible Flexible Gelatin. To apply this type of coating the compound is melted in water and applied warm to the inside of the container.

AIR BRUSH COATER

Patents are pending on a new Micro Jet air brush coater designed by the John Waldron Corp., New Brunswick, N. J., said to embody construction and operating features that constitute a major advance in the field of coating. Plans for introducing it are not yet completed, however.

Plants and People

Reed M. Grunden of the Hinde & Dauch Paper Co's market research division, recently addressed the Lima, Ohio, Advertising Club on the subject "Color in Packaging." He pointed out that prepacked merchandise is being given special attention by department stores who hope in this way to maintain current sales volume.

Ronald H. Dallas has been appointed assistant general sales manager of Glass Containers, Inc. **T. J. Conry** takes over the position of production manager.

William H. Allen has been appointed sales manager of the newly created specialties division of the Empire Box Corp.

The Imperial Paper Co. has moved its sales and administrative offices to 2351 Ferguson Rd., Cincinnati 5, Ohio. Warehouse, shipping and receiving departments are at 624 East Front.

The Burgess Fastening Co. was organized and opened for business November 25, with general offices and factory in the National Terminals Bldg., 1220 W. 9 St., Cleveland, Ohio. **Warren S. Johnson** has been made general manager of the new company.

The Borden Co. has established a department of market and economic research to ensure both consumer acceptability and economically sound pricing and distribution of its products. **H. F. Korholz**, formerly of Food Industries Promotion, Inc., will head the new department.

First public display of a 22-foot Navy torpedo, one of three types built by Amertorp Corp., subsidiary of the American Can Co., was the occasion for a luncheon recently at the Waldorf-Astoria Hotel at which **Herbert F. Leary**, commander of the Eastern Sea Frontier, complimented company officials.

Magill-Weinsheimer Co., Chicago, has announced the opening of its New York office at 369 Lexington Ave., with **Edward F. Blechta**, vice-president, in charge.

Don Thom has been appointed representative of the Chicago area for the F. G. Findley Co., Milwaukee, Wis. Mr. Thom was formerly with the Hercules Powder Co.

Plant No. 1 of the Aeroil Burner Co., Inc., of West New York, N. J. was awarded the Army-Navy "E" recently.

G. N. Streit will head the newly consolidated corrugating, dry adhesive and liquid adhesives departments of Stein-Hall Mfg. Co., Chicago, henceforth to be known as the adhesive department. **O. W. Westerlund** will continue in charge of dry adhesives and **R. A. Selner** will head liquid adhesives.

E. E. Tweed has joined the paper department sales staff of Stein, Hall, New York, to cover the paper mills in the Southeastern States. **Clifford T. Fogarty** will be transferred from the Southeastern territory to New York and Pennsylvania. **Robert D. McCarron** will cover part of the New England territory including some paper mills while **F. W. Perry** will act as manager of the new products development division of the technical department at the company's New York headquarters.

Oliver H. Clapp, a vice-president of Stein, Hall & Co., Inc., has left for Brazil on a business trip.

The Fred'k H. Levey Co., Inc., division of Columbian Carbon Co., has made several additions to its staff: **Adam Dembicki** is now in the laboratory to supervise the carton ink department. **Alfred Strohm** is representing the company in Milwaukee where

a new office has been opened while **Walter Parisette** is serving as sales service engineer. **John Slager** has been made a member of the staff of the technical control laboratory.

Harold W. Kephart, formerly assistant vice-president of Reynolds Metals Co., has been appointed head of the newly set up foil and packaging division of Bulkley, Dunton.

Lee F. Johnson has been appointed to direct the newly opened Philadelphia office of the Atlantic Gummed Paper Corp. with offices at 307 Lafayette Bldg., 5th and Chestnut Sts.

R. E. Baker, formerly head of the sale of seals and milk bottle hoods for the Aluminum Co. of America in Pittsburgh, has been transferred to the Aluminum Seal Co., an Alcoa subsidiary, at New Kensington, Pa.

Dr. Roger H. Lueck has returned to his post as manager of sales for the Pacific division of American Can Co.

The Lord Baltimore Press has moved its offices to 595 Madison Ave., New York City.

The Signode Steel Strapping Co., Chicago, is erecting a building adjacent to its present plant to make adequate provisions for immediate war requirements. The new building will provide enlarged warehousing and shipping room facilities with a 12-truck loading dock.

Celanese Plastics Corp. is the new name of the selling organization for the plastics products formerly merchandised under the name of Celanese Celluloid Corp. This change rounds out the sales organization of the company in the related fields of textiles, plastics and chemicals.

Robert P. Kenney, chief of the vinyl resins unit of the chemicals bureau, WPB, has been named manager of international service of the chemical division, The B. F. Goodrich Co.

R. V. Mitchell, president of Harris-Seybold-Potter Co., advances to chairman of the board of directors and assumes chairmanship of the executive committee as a result of some changes in top management of the concern made in preparation for expanded postwar plans. **A. Stull Harris** becomes president of the company and **George S. Dively** steps into the position of vice-president and general manager. **R. L. Miller** has been upped to treasurer while **G. C. Houck** is made assistant treasurer. **N. C. Scourfield** becomes manager of the Seybold plant at Dayton.

H. A. Porter, long vice-president in charge of sales, becomes a member of the executive committee. Mr. Porter recently announced major sales department changes integrating the Harris and Seybold sales under his direction.

Arthur P. Hirose, director of promotion and research for Newsweek, and a contributor to the pages of both MODERN PACKAGING and PACKAGING CATALOG, died on December 9, of pneumonia in the Harrisburgh (Pa.) General Hospital. Mr. Hirose was on a speaking tour and contracted a severe cold in Chicago but insisted upon filling his engagements. He was 42 years old.

Charles C. Colbert, founder and chairman of the board of directors of the American Coating Mills, Inc., died November 23.

Benjamin F. Fischer of the sales department of F. J. Schleicher Paper Box Co., St. Louis, Mo., died on November 29.

For Your Information

"The Chemistry and Technology of Food and Food Products," (2 volumes—price \$19.00) published by Interscience Publishers, Inc., New York, and edited by Morris B. Jacobs, Ph. D., is the comprehensive work of 41 collaborators. To cover the various phases of this work, food technologists, chemists, biochemists, bacteriologists, sanitary engineers, public health officers, food inspectors and entomologists are represented among the contributors.

The two volumes are divided into a total of six parts. The first, on fundamentals, deals with the aspects of food chemistry which are common to all foods. The second part concerns the descriptive aspects of particular food groups and includes some account of the history, statistics, definitions, standards, composition and chemistry of these food groups. In part three, unit operations and processes applicable to most foods are described. Part four deals with the maintenance of sanitary and quality control of food and food products. In part five, the principal methods of preserving foods are delineated and part six is concerned with production methods.

Chapter XIV, Volume II, Packaging, prepared by Christopher W. Browne, editor-in-chief of **MODERN PACKAGING**, covers all phases of food packaging including (1) The Functions of Packaging, (2) Package Design, (3) The Materials of Packaging, (4) Kinds of Packages, (5) Packaging Operations and (6) Packing and Shipping.

"The Microanalysis of Food and Drug Products," a 171-page circular published by the Food and Drug Administration for the guidance of its regulatory staff, has been made available to the public. The circular was prepared by the Administration's microanalytical division to assist analysts and inspectors in the detection of violations of the Food, Drug and Cosmetic Act. It covers plant sanitation, filth contamination, decomposition and the identification of foods and drugs by the use of the microscope. Insect and rodent contamination, which is making serious inroads on the wartime food supply, is stressed. The 104 illustrations include many pictures of the insect pests commonly found in stored foods and raw materials. The sanitary inspection of plants processing dairy and tomato products receives specific comment in the chapter on molds. Copies may be obtained from the Superintendent of Documents, Washington, D. C. for \$0.30 each (stamps not accepted).

The **Society of the Plastics Industry, Inc.** has recently published a new 1944-45 Directory listing 440 member plastics concerns in the United States and Canada. More than 700 different plastics products, with the manufacturers of each, are shown in the Product Index. In addition, the new Directory includes for the first time a Material Index and a Machine Index, each containing the names of producers. The Who's Who in Plastics section lists hundreds of names and addresses of executive, sales and engineering personnel of member companies. The Directory may be obtained from the Society, 295 Madison Ave., New York 17, N. Y. Price \$2.50.

The annual convention of **The Toilet Goods Assn.** will be held at the Waldorf-Astoria, New York City, May 9, 10 and 11.

Roy C. Newton, vice-president of **Swift & Co.**, speaking at the first of a series of meetings held by the Chicago Assn. of Commerce for the purpose of acquainting business men with new developments in science, predicted that the five-year period following the war will bring outstanding advances in plastic packaging materials, with numerous new materials being introduced.

"The application of plastics to the food packaging field has been seriously interrupted by the use of these materials and these

facilities in the production of arms and equipment," Mr. Newton said. "The active interest of food processors and the consuming public will, however, inspire a new era of research in the application of these (plastic) materials in food packaging."

The 1945 gold medal of the Technical Assn. of the Pulp and Paper Industry will be awarded to Bourdon W. Scribner, Chief of the Paper Section of the National Bureau of Standards, according to the executive committee of the Assn. The presentation will be made at the annual meeting on February 22, 1945.

The **Economic, Financial and Shipping Mission** of the Kingdom of the Netherlands is presently engaged in collecting all technical information dealing with all phases of the paper industry in order to be ready for reconstruction when the war is over. It is expected from all reports reaching the Netherlands Government that the Nazis will have completely wrecked the paper industry in that country. All suppliers of paper mill equipment undoubtedly will be asked to supply information concerning their products, both presently manufactured and contemplated in the future.

The engineering department of **Otaco Limited**, Ontario, Canada, has produced an export packaging manual for Mosquito aircraft parts to provide a general specification and instruction book covering methods of packing spare parts. Its purpose is to cover methods of packing by using the materials now available in Canada and to employ those methods without the need for specialized equipment.

The sixth annual conference of the **Institute of Food Technologists** will be held at the Hotel Seneca, Rochester, N. Y., May 21, 22 and 23.

The next annual meeting of the **National Dehydrators Assn.** will be held in the Crystal Room of the Hotel Sherman, Chicago, on Tuesday February 6, 1945.

Handbook Catalog No. 71, just issued by the Micro Switch Division, Freeport, Ill., illustrates and describes over 500 heavy duty type micro switches and auxiliary devices for electrical controls in aircraft, automotive, marine, railway and heavy machinery. Engineers in the design, production and electrical field will find this new catalog useful. Address requests for the catalog to Micro Switch Division, Freeport, Ill.

Don L. Quinn of the Don L. Quinn Laboratories has succeeded **Arno W. Nickerson** as chairman of the TAPPI Container Testing Committee. **W. H. Graebner** of the Marathon Corp. has been appointed chairman of the Package and Packaging Materials Testing Committee recently organized to meet the Army and Navy needs.

Celanese Plastics Corp. has issued its new booklet on the several types of plastics made by the company. In the thought that in the development of a product design the conditions of use dictate the choice of plastic formulation Celanese offers the pamphlet along with its technical service to fabricators in the early stages of designing work.

The **B. F. Goodrich Co.**, aeronautical division, Akron, Ohio, recently published its Catalog of Adhesives, Coatings, Primers, and Sealing Compounds. The products described meet the requirements of aircraft manufacturers, the commercial airlines and, in certain instances, U. S. Government specifications. Copies may be had by writing the company.

U. S. patent digest

This digest includes each month the more important patents which are of interest to those who are concerned with packaging materials. Copies of patents are available from the U. S. Patent Office, Washington, at ten cents each in currency, money order or certified check; postage stamps are not accepted.

Box, E. L. Arneson (to Morris Paper Mills, Chicago, Ill.) U. S. 2,361,923, Nov. 7. A knock-down box comprising a unitary sheet of paper board shaped and creased to provide a pair of similar oppositely disposed side walls which are flexibly connected to each other at their top ends and foldable into acute-angular relationship to each other.

Package, Container, and Blank Therefor, E. M. Brogden (to President & Directors of the Manhattan Co., trustee, New York, N. Y.) U. S. 2,361,926, Nov. 7. A display and carrying package for consumer units of merchandise comprising a prismatic merchandise group of columnar articles compactly arranged with their axes substantially parallel and a sheet material container.

Telescopic Box, M. I. Williamson (to National Folding Box Co., New Haven, Conn.) U. S. 2,361,984, Nov. 7. A folding box comprising a plurality of telescopically related box sections, each hollow-formed from foldable sheet material.

Shipping or Mailing Container, M. W. Zimmerman, Brooklyn, N. Y. U. S. 2,362,181, Nov. 7. A container with a wall comprising a corrugated sheet of material, a flat sheet of material overlying said corrugated sheet and adhesively attached thereto except for a predetermined area.

Soldering Machine, W. D. Jordan (to American Can Co., New York, N. Y.) U. S. 2,361,947, Nov. 7. A machine for solder tipping vent holes in containers.

Cosmetic Case, J. deSwart, Los Angeles, Calif. U. S. 2,362,120, Nov. 7. A compact with base element and lid element hingedly connected together the peripheral edges of the element for swinging movement relative to each other.

Lipstick Display & Sample Cabinet, N. H. Freeman (to Helena Rubinstein, Inc., New York, N. Y.) U. S. 2,363,367, Nov. 7. A lipstick display and sample cabinet, comprising a panel having a plurality of openings, each thereof being adapted to accommodate a lipstick sample, and a lipstick holder loosely pivoted in each opening.

Machine for Making Fibre Container Parts, J. M. Hothersall & J. H. Murch (to American Can Co., New York, N. Y.) U. S. 2,361,942, Nov. 7. A machine for making fibre container parts, the combination of means for feeding a strip of fibre stock along a predetermined path of travel, and die mechanism adjacent said path for forming an auxiliary container part from said strip.

Assorting Apparatus, E. A. Krueger (to White Cap Co., Chicago, Ill.) U. S. 2,361,948, Nov. 7. An apparatus for arranging flat circular articles of like size.

Method of Applying Closures to Containers, E. E. Hogg (to Aluminum Company of America, Pittsburgh, Pa.) U. S.

2,362,009, Nov. 9. A method of affixing a cap including a resilient sealing gasket and a cup-like shell terminating in a beaded edge to a container having an annular mouth head.

Self-closing Bottle, A. S. Odin, Detroit, Mich. U. S. 2,362,150, Nov. 7. A bottle having an elongated tubular neck of circular cross section from end to end and tapering smaller upwardly, and provided with an annular internal valve seat, with resilient washer secured in the upper end of said neck.

Supporting Structure of Beverage Filling Machines, R. J. Stewart (to Crown Cork & Seal Co., Inc., Baltimore, Md.) U. S. 2,362,167, Nov. 7. A supporting structure for a machine including a base, a vertical and rotatable shaft projecting upwardly from the base, and a pair of elements of relatively large diameter mounted on the shaft in superposed relation, said means comprising a plurality of threaded jacks connecting said elements.

Labeling Machine, G. W. vonHofe (to New Jersey Machine Corp., Hoboken, N. J.) U. S. 2,362,328, Nov. 7. In a labeling machine, a pair of members co-operating with each other to provide a divided supporting seat for an article to be labeled, and means for applying a label to article, and means for dislodging the article from supporting seat after labeling.

Registering Device in the Manufacture of Paper Boxes, J. S. Stokes, Huntingdon Valley, Pa. U. S. 2,362,168, Nov. 7. In a box making system having means for applying adhesive to box wrappers, the combination of an assembly station for the manual registration of box blanks with respect to their wrappers.

Infusion Package and the Manufacture Thereof, L. Barnett (to by mesne, National Urn Bag Co., Inc. Long Island City, N. Y.) U. S. 2,362,459, Nov. 14. An infusion package comprising an elongated bag of filtering sheet material formed with an edge border closure seam extending lengthwise of the bag, and an essence containing product enclosed in said bag, and provided with integral segment-handle for suspending the package in brewing.

Translucent Fibre Tissue Pressure Sensitive Adhesive Tape, G. Schieman (to International Plastic Corp., Morristown, N. J.) U. S. 2,364,001, Nov. 28. A flat tape structure comprising a flexible base, a pressure-sensitive adhesive coating on one side, and a thin flat sheet of tissue directly applied to said adhesive coating.

Display and Dispensing Stand, M. C. Meyer (to Duranol Products, Inc., Brooklyn, N. Y.) U. S. 2,363,542, Nov. 28. A display and dispensing stand comprising a base, two support members mounted and secured upon said base, a plastic display

unit mounted and secured upon said support members, said display unit comprising on one piece a transparent front wall portion.

Container Filling Apparatus, B. DeHaven Miller (to The Girdler Corp., Louisville, Ky.) U. S. 2,363,543, Nov. 28. An apparatus for filling a container with liquid, with filling nozzle having a vacuum passage and a liquid passage and valves for closing said passages operated by movement of said nozzles.

Apparatus for Sealing Containers, H. E. Stover (to Anchor Hocking Glass Corp., Connellsville, Pa.) U. S. 2,363,704, Nov. 28. An apparatus for sealing the cap onto a container.

Wrapping Machine, R. H. Schultz & J. Siebert, Brooklyn, N. Y. U. S. 2,363,751, Nov. 28. A machine comprising in combination with a wrapping mechanism for rolls, means for supporting said rolls axially thereof.

Wrapping Machine, R. R. Brightwell (to Stephano Brothers, Philadelphia, Pa.) U. S. 2,363,939, Nov. 28. A wrapping machine comprising means for wrapping sheet material partially around an article so as to provide two projecting flaps adjacent one end thereof.

Milk Bottle Carrier, P. E. Fearon, Canaan, Vt. U. S. 2,363,950, Nov. 28. A milk bottle carrier comprising two horizontal plate-like bars, one of said bars having laterally projecting flanges on the inner longitudinal edges of its end portions the other bar having end portions of reduced thickness. The bars having a plurality of openings for retaining reception of the necks of a plurality of bottles when each bar is in closed position.

Infusion Package and the Manufacture Thereof, L. Barnett (to Millie Patent Holding Co., a corporation of New York) U. S. 2,362,460, Nov. 14. An infusion package having a flattened tubular bag structure formed of a strip of filtering sheet material with a single "lapped angle" joint seam extending centrally along the length of a flat side thereof and top and bottom closures.

Double Post Card and Return Envelope, G. J. Mess, Indianapolis, Ind. U. S. 2,362,496, Nov. 14. A combination initial trip post card and reply envelope including a blank of approved post card paperboard weight and color having a post card portion adapted for detachment subsequent to original delivery and retention by the original addressee, and reply envelope forming body portion integral therewith along a common edge.

Ice Cream Cone Holder, T. E. Torrison, Robbinsdale, Minn. U. S. 2,362,595, Nov. 14. A holder for an ice cream cone for receiving dripping from the cone and protecting hands from such drippings, and made from flexible material and of shape similar to cone itself.

Dispensing Container, S. Blackman, Brooklyn, N. Y. U. S. 2,362,609, Nov. 14. A dispensing container comprising a container body and a cupped cover therefor both of molded plastic material, the body having a large main compartment and a small dispensing compartment, the mouths of said compartments being

coplanar, said cover being slidably movable over the top of said container.

Dispenser, E. M. Lauer, New York, N. Y. U. S. 2,362,835, Nov. 14. A dispenser comprising a cylindrical body having a plurality of pockets formed therein, each of said pockets forming a cylindrical chamber extending inwardly from the surface of said body, and a strip of material forming a seal for all said pockets is wound about said body.

Sheet Metal Container, F. J. O'Brien (to Continental Can Co., Inc., New York, N. Y.) U. S. 2,362,846, Nov. 14. A sheet metal container with an outwardly extending flange at the end, a closure end having a depression providing a vertical wall fitting within the can body, and a portion extending over and rolled into a double seam with the flange of the can body.

Container Structure, F. J. O'Brien (to Continental Can Co., Inc., New York, N. Y.) U. S. 2,362,845, Nov. 14. A container having a large area open bottom end closed by a foreign matter excluding transparent end member adhered to said container and through which the interior of the container can be inspected with facility prior to filling.

Paper Container for Fluid, M. H. Sidebotham, Newton, Mass. U. S. 2,362,862, Nov. 14. A rectangular blank for paper containers having crease lines and recesses fashioned therein.

Pour Spout Carton, K. F. Spalding (to F. Dorsey Montgomery, Chicago, Ill.) U. S. 2,362,942, Nov. 14. A carton made of a blank including side walls and end flaps precreased and precut so as to form a pour spout closure for the carton.

Can Closing Machine, P. E. Pearson (to Continental Can Co., Inc., New York, N. Y.) U. S. 2,362,848, Nov. 14. In a can closing machine an indexed turret having pockets in its periphery, means for supporting can covers in the pockets of said turret and means for feeding filled cans into the turret.

Bag Closing Machine, D. Belcher & F. R. Linda (to Bemis Bro. Bag Co., Minneapolis, Minn.) U. S. 2,362,462, Nov. 14. A conveyor for bags to move filled bags into position for closing by this machine.

Attachment for Stripping Foam from Cans, H. D. Ayars (to Continental Can Co., Inc., New York, N. Y.) U. S. 2,362,791, Nov. 14. The combination of conveying means for conveying filled cans to a closing machine, a stationary stripper blade associated with the conveying means to contact the foam projecting above the cans, passing beneath same.

Machine for Filling Cans, H. D. Ayars (to Continental Can Co., New York, N. Y.) U. S. 2,362,793, Nov. 14. A machine for filling cans comprising a supporting frame, a tank rotatably mounted in said frame, a plurality of measuring pockets associated with said tank and rotating therewith.

Method of and Apparatus for Removing Air from the Head Spaces of Filled Cans, J. M. Poyd & G. T. Peterson

& L. E. Clifcorn (to Continental Can Co., Inc., New York, N. Y.) U. S. 2,362,799, Nov. 14. Means for removing air from head spaces of filled cans by directing an air displacing fluid medium radially inwardly and horizontally in individual jets which mutually contact centrally over said container.

Package Wrapping Machine, C. E. Hinchey, Weyauwega, Wis. U. S. 2,362,819, Nov. 14. A package wrapping machine comprising a table having an elongated flat top with super structure spanning said top and vertically, reciprocally mounted on portion of the table, a package conveyor movable along said table top with clutch controlled means for steppedly advancing the conveyor.

Key Opening Sheet Metal Container, W. W. Hodgson (to Continental Can Co., Inc., New York, N. Y.) U. S. 2,362,821, Nov. 14. A sheet metal key opening container including a closure and having a depression formed therein, a metal key attaching disk located in said depression.

Container Sealing Machine, R. M. Mero (to Continental Can Co., Inc., New York, N. Y.) U. S. 2,362,840, Nov. 14. A machine for sealing cans.

Filled Container Steaming Apparatus and Method, H. L. Minaker (to Continental Can Co., Inc., New York, N. Y.) U. S. 2,362,841, Nov. 14. An apparatus with rotary turret for conveying filled containers and covers and subjecting same to jets of steam.

Bread Wrapping Machine, J. A. Stein & L. V. Whipped (to American Machine & Foundry Co., a corporation of New Jersey) U. S. 2,362,959, Nov. 14. An article wrapping machine equipped with infeed plate over which articles to be wrapped are moved.

Display Device, A. I. Burd & M. M. Burd, Melrose Park, Pa. U. S. 2,362,800, Nov. 14. A ladies' stocking display device comprising a vertically-disposed board, a form simulating the leg of a person in sitting position carried by one side of the board and adapted to have a stocking drawn thereover.

One-piece Handled Bottle Carrier, G. L. Gilbert (to Morris Paper Mills, Chicago, Ill.) U. S. 2,362,995, Nov. 21. A carrier for bottles formed of sheet material cut and folded to provide a bottom with side panels conjoined to its lateral margins at their lower ends.

Closure for Paper Containers, F. J. O'Brien (to Continental Can Co., New York, N. Y.) U. S. 2,363,352, Nov. 21. In a container, a body, an end closure, said closure having a heel and a surrounding skirt cooperating with said heel in providing a channel in which the end of said body is embraced.

Mailing Card, L. S. Ritter, Darien, Conn. U. S. 2,363,472, Nov. 21. A package comprising a basal member having a surface area, a decalcomania transfer mounted on said area and detachable therefrom for transferring to a smooth surface protective covering overlying the transfer.

Packing Machine, C. A. Nicolle, Montrouge, France (vested in the Alien

Property Custodian). U. S. 2,363,014, Nov. 21. For use in a machine for the continuous mass packing of identical articles, such as pills or tablets, into cellulose wrappers, and sealing them in same.

Adhesive Tape Dispenser and Applier, A. A. Anderson (to Minnesota Mining & Mfg. Co., St. Paul, Minn.) U. S. 2,363,277, Nov. 21. A machine with means for feeding a piece of adhesive material into a predetermined position to be engaged by an article upon movement of the latter in one direction.

Process of and Compositions for Protectively Coating Fresh Fruits or Vegetables, C. DeWitt Cothran (to Brodrex Company, a company of California) U. S. 2,363,232, Nov. 21. A thinly fluid aqueous emulsion useful for protectively coating fresh fruits or vegetables against withering or shrinkage composed of 1 to 10 parts of waxy material emulsified with less than 5 parts of an amine soap together with water sufficient to make 100 parts.

Method of making Paperboard Containers, C. F. Klein (to Frankenberg Bros., Inc., Columbus, Ohio) U. S. 2,363,425, Nov. 21. In the manufacture of inner lined paperboard boxes, the steps which comprise applying to one side of a box-forming blank through use of a heat-softening adhesive a lining sheet.

Pneumatic Means for Stripping Laminated Paper Stock, A. L. Scott (to Frankenberg Bros., Inc., Columbus, Ohio) U. S. 2,363,442, Nov. 21. An apparatus for producing folding cartons formed from a sheet of paperboard on which a sheet of lining material is secured by means of a heat-softening adhesive, a means operative while said adhesive is in a softened state to remove the severed region of each blank from the lining means.

Magazine for Safety Razor Blades, S. C. Stampleman (to Gillette Safety Razor Co., Boston, Mass.) U. S. 2,363,908, Nov. 28. A blade magazine having an elongated enclosure with a blade-exit opening in one end, and means for locating a stock of blades within the enclosure.

Bag Closure, E. Arens (to The Great Atlantic & Pacific Tea Co., New York, N. Y.) U. S. 2,363,926, Nov. 28. In combination with a conventional bag with gusset sides, independent means for embracing the folded ends of the bag for locking the folded portion in position against the side of the bag.

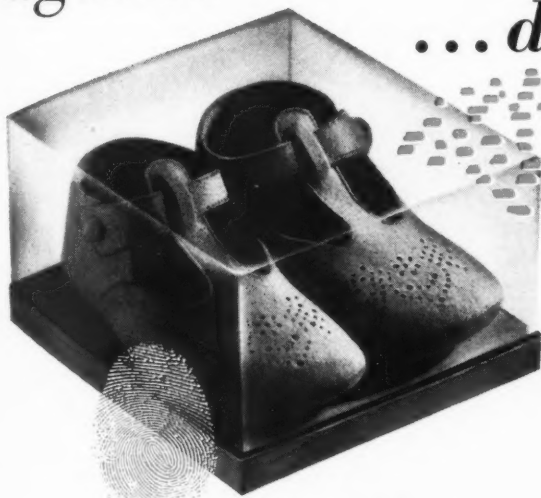
Envelope or Container, G. H. Goff (to The Brown Bag Filling Machine Co., a corporation of Massachusetts) U. S. 2,363,957, Nov. 28. A container from a blank sheet material having a front wall and two side flaps lapped to form a back wall.

Ventilated Shopping Bag and the Method of Constructing the Same, M. Katz, Bronx, N. Y. U. S. 2,363,971, Nov. 28. Method of producing a ventilated shopping bag which comprises folding the bottom wall portion of a shopping bag centrally and longitudinally to form thereof two halves and two disposed side walls in common, and then perforating the lower portion of the side walls.

PROTECTION

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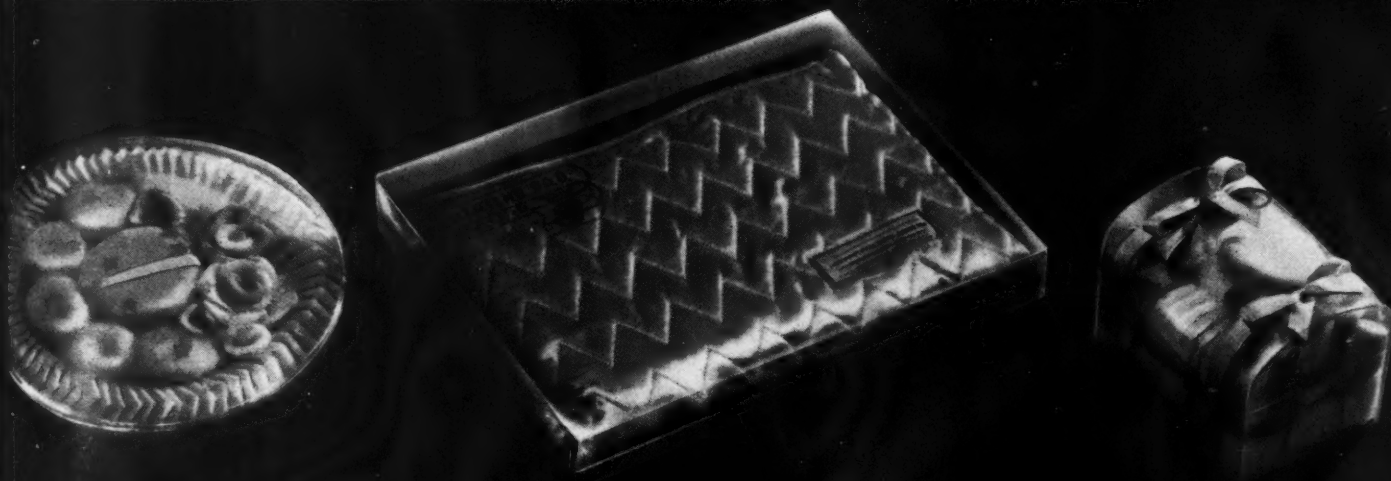
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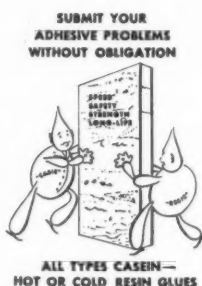
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Oxygen penetration . . .

(Continued from page 118) the trial 9 times 0.175 or 1.575 cc. of oxygen was present in the 900 cc. of gas under the pouch. The pouch had therefore allowed 1.089 cc. of oxygen (the difference between 1.575 at the end and 0.486 already present at the start) to pass from the surrounding air into the diffusion chamber.

The average rate of penetration therefore amounts to 1.089 divided by 555, or 0.002 cc. of oxygen per hour. This figure characterizes the ability of the pouch to exclude oxygen under the conditions of our experiment—namely, a temperature of 30 deg. C., and no major differences in total gas pressure between the interior of the pouch and the surrounding air.

Assuming that the seams of the pouch held perfectly and that therefore oxygen penetrated through the material only, one may calculate the penetration rate per unit of the exposed surface of the material. This surface was estimated as 500 sq. cm. The oxygen penetration rate therefore amounted to 0.002 divided by 500, or 0.000004 cc. of oxygen per hour per sq. cm. of exposed surface. This figure (4 millionths of a cubic centimeter) characterizes the oxygen-withholding quality of the pouch material under the experimental conditions, provided the seams held perfectly.

The manufacturers of pouches will measure resistance to oxygen penetration both for the pouch (as in our example) and for the pouch material. The latter can be tested with our apparatus by fixing a piece of material without seams over the top of the diffusion chamber. (See the two apparatuses on the right hand side in Fig. 1.)

If the two measurements prove that no oxygen penetrated the seams (as we assumed above), then pouches can be improved only by the use of better material. If, however, the rate of oxygen penetration is greater through the pouch than through the material, then better methods of making the pouches should be sought to use to best advantage the quality of the material.

If, in the example chosen, the oxygen penetrated by diffusion only, not through mechanical flaws of the pouch or the material, one can calculate what is generally known as the diffusivity, or the diffusion coefficient. For this calculation we need the thickness of the material through which the oxygen penetrated at the rate of 0.000004 cc. per hour per sq. cm. of exposed surface.

This thickness in the example above was 0.075 mm. If the material had been 1 cm. thick the rate would have been 0.000004 times 0.075 or 0.0000003 cc. If the sack had been exposed to pure oxygen instead of air, making a so-called oxygen diffusion potential or "difference in partial oxygen pressure" of 1 atmosphere (instead of only $\frac{1}{5}$ of one atmosphere with air containing 20% oxygen), then the diffusion rate would have been 5 times as great—namely, 0.0000015 cc. of oxygen per hour. For water the corresponding coefficient would be 0.002 cc. of oxygen per hour. The cellophane of which the pouch was made has therefore about 1,400 times as much resistance to oxygen diffusion as water does.

The apparatus described can be adapted to penetration measurements that enable one to differentiate between penetration by diffusion and penetration through mechanical flaws. This distinction is of interest mainly to the manufacturers of package material.

References

- L. W. Elder, MODERN PACKAGING, July (1943).
- M. Kleiber, Jour. Biol. Chem., 101, p. 583 (1933).
- F. R. Smith and M. Kleiber, Ind. Eng. Chem., Anal. Ed., 16, p. 586 (1944).

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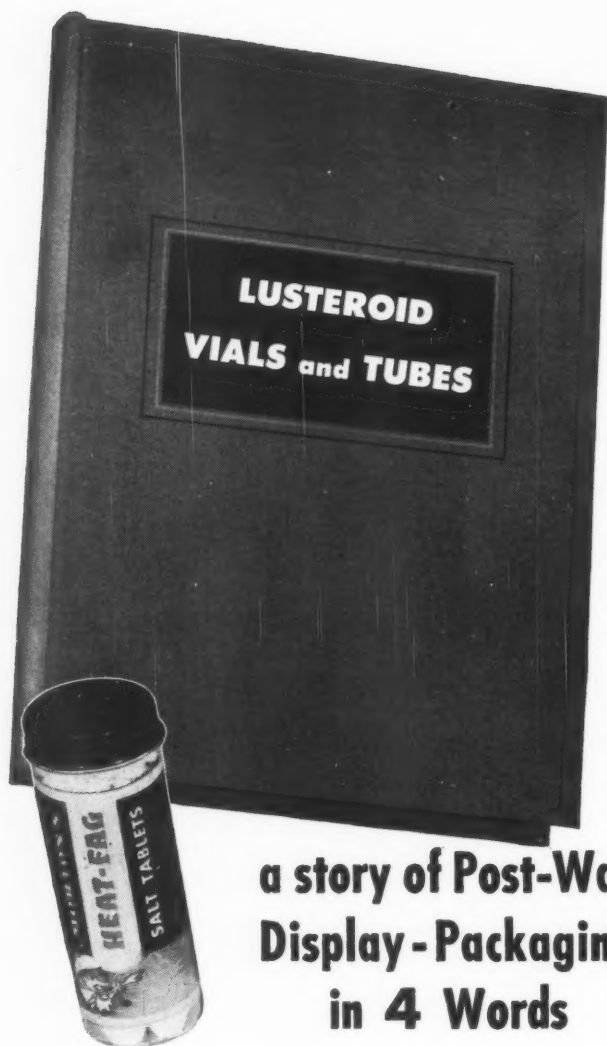
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JANUARY • 1945

141



a story of Post-War Display-Packaging in 4 Words

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Contract packaging . . .

(Continued from page 103) ing packages of food components on the conveyor, stuffing, inserting keys, exhausting air from the double laminated cellophane envelope with a vacuum line before it passes through the rotary heat-sealing machine, and inserting the sealed bags in chipboard folding cartons—and yet their operations are so smoothly synchronized that none appears hurried.

A vital factor in the success of this operation consists of the playing of employee requested recordings and frequency modulation programs designed for war workers on a central unit, the sound being distributed through the working area over amplifiers mounted above the packaging lines. Like numerous other packaging firms, the Brewer company has found that appropriate music not only encourages the development of rhythm in production line operations, but also tends to prevent workers from engaging in conversation which might reduce output. In this plant, records are played a maximum of 20 minutes out of each hour. The record system, it is said, has proved particularly valuable in holding production at efficient levels during the two "worst" periods of each 8-hour shift—immediately after lunch and during the final half-hour before the shift ends, when attention often begins to wander.

While the recorded-music arrangement is used only in Plant No. 2, other phases of the Brewer employee relations program, including hospitalization insurance, apply to personnel on both packaging operations now being conducted by the company. In both plants, packaging lines are operated on two 8-hour shifts per day, six days a week. On all shifts, 10-minute rest periods divide the before-lunch and after-lunch schedules into two periods of two hours each.

During these periods the company serves coffee, doughnuts and sweet rolls to the workers, at company expense, in the small lunchrooms located in both plants. Soft drinks, milk and other foods are also available to those wishing to purchase them. During the regular lunch periods, which last half an hour, the coffee is again "on the house"—as much as the workers can drink.

Employee interest in improving plant efficiency is promoted by means of a suggestion plan in which all workers are invited to participate. Suggestion boxes are located in the plant lunchrooms. Employees who wish to make a suggestion on improved working conditions, more efficient production or related matters drop into these boxes a printed form on which they explain the proposal in writing. Before depositing the form in the box, the employee removes a stub bearing a duplicate serial number; the name of the person making the suggestion does not appear on the form. Every two weeks, newly submitted suggestions are reviewed by Brewer executives and appropriate cash awards are promptly made in accordance with the value of those accepted. Not long ago, an employee who submitted an idea on a new loading dock won a \$75 award, based on a percentage of the estimated annual saving which the project will bring.

The company also seems to have whipped the problem of absenteeism—a particularly important consideration on packaging lines, where the absence or tardiness of a single worker may severely curtail output. Under the Brewer merit award system, employees with 60 consecutive days of perfect attendance (which includes being on time) receive an attractive silver medal with white bar and a 2-lb. box of candy. Perfect attendance for 120 days brings the worker a silver medal with red bar and a \$5 merchandise certificate from a

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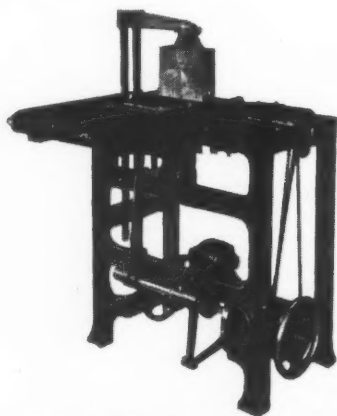
Are You Short of Help Today?

Could you use the girls who are now setting up and closing the cartons for your product by hand, somewhere else in the plant? Today more than ever you can see that such hand operations are reducing your profit as well as slowing down your production line. These conditions should be improved before it's too late.

PETERS is extremely busy on war work, but we have found time to assist many plants with their carton packaging problems. If you are looking for a "cure" for your hand carton packaging, just send a sample of each size carton to us. We will show you how PETERS equipment can reduce your labor cost, and increase your production and profit.

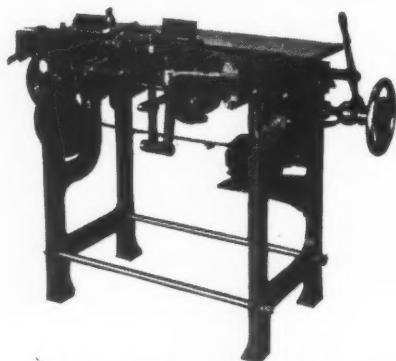
It is important to act at once as we expect to fill orders in the same sequence as received.

This unit
sets up your
carton.



PETERS JUNIOR CARTON FORMING AND LINING MACHINE—sets up 35-40 cartons per minute, with only one operator. When cartons are set up they drop onto a conveyor and are carried to be filled. If several size cartons are to be handled, machine can be made adjustable.

This unit
closes your
carton.



PETERS JUNIOR CARTON FOLDING AND CLOSING MACHINE—closes 30-40 cartons per minute, requiring no operator. After cartons are filled they enter machine on conveyor and are automatically closed. Can also be made adjustable to close several size cartons.

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local department store, while workers having perfect record for 180 days receive a gold medal with red, white and blue bar and a \$10 merchandise certificate. The number of workers wearing these award pins on their uniforms is the best evidence that the system really works.

Every five or six weeks, on company time, packaging lines are halted and all workers are the guests of the company at a local theater rented by the management. Here a special program is staged, usually consisting of a short comic film, two war films and a talk by an Army or Navy representative who has served on one of the fighting fronts of World War II. The complete presentation runs more than an hour and is given twice so that workers from both shifts may attend it. A gala Christmas party on December 23 featured a turkey dinner, music, entertainment and prizes.

After the war, the Brewer company is planning to keep its packaging facilities in operation, making the necessary modifications of its lines to handle contract packaging for outside firms or to package items produced by the company itself. It goes without saying that when that time comes, the methods now being employed by this concern in stabilizing employment and building worker morale will prove invaluable in meeting the challenge of wartime competition.

Credit: Rotary heat sealers, Pack-Rite Machines, Milwaukee, Wisc.

Postwar in foods . . .

(Continued from page 99) facturers of non-metal packages might well profit by the broad and wise approach to these problems adopted by the tin can manufacturers. These companies have thought in terms of the processing of the food to be packaged. As evidence of this policy, the paper industry should be reminded that can companies have studied problems of food preservation as such, many times only indirectly concerned with packaging.

As a result of these general and basic studies, complete processing information has been available to the users of metal which was hardly available from any other source. The manufacturers of paper and allied materials, since entry into the food processing field, have adopted the short-sighted policy of thinking in terms of the materials only and have not been willing to consider their problems as part of the food processing industry. These manufacturers must give some thought to the whole field of food processing and concern themselves with nutritive value, palatability, mechanical processing problem, and all of the other questions which daily confront a small food processor. The paper or carton manufacturer cannot hope to compete with tin if he does nothing more than deliver the package at the warehouse of the processor.

Although tin has been an outstanding packaging material, it has been developed wisely and in the best interests of the food industry. Some of the best research on food processing over the last twenty years has been carried on in the laboratories of can manufacturers. With this as a background, small and many large processors have been given the advantage of this information.

If the non-metal packaging industry is to establish itself in the food field in the postwar period, when the Army and Navy are not available to furnish the processor the technical advice which he needs, the paper industry will need to develop a backlog of food processing information to counsel and support old accounts and develop new ones.

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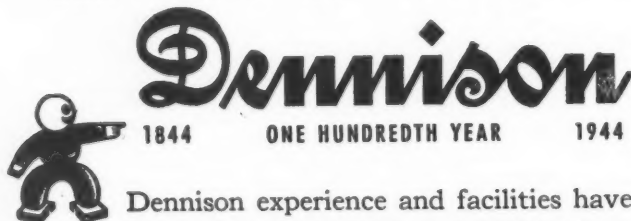
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Dehydrated meat . . .

(Continued from page 123) containers tested showed leakage apparently through the side and end seals.

Since the moisture content of dehydrated meat should at no time exceed 10% and since additional oxygen leads to oxidation, a container for dehydrated meat should exclude both moisture-vapor and air.

Other packaging studies

Packaging materials used for dehydrated meat should likewise be impermeable to fat. Tests of a group of more than 20 different kinds of non-metallic packages, all of which failed, indicated that the adhesive, the laminating agent, and the heat seal must all be insoluble in fat. Various kinds of paper packages were tested after being dipped in wax or gelatin. It was found that, if the inner bag was tight, the coating applied by dipping was unnecessary and if the inner package leaked, the wax or gelatin did not protect the contents of the package.

Experiments with non-metallic packages showed that sometimes foreign substances, odors or flavors were imparted to the meat from the package. By proper selection of the laminating and coating material used in making the paper sheets, this trouble could probably be avoided.

Spectrographic studies to determine the extent to which dehydrated meat could be contaminated with lead from the lead foil of package E were carried out. Twenty-four packages with and without a special inner glassine liner, filled with dehydrated pork, were shipped 5,000 miles by rail. Under the conditions of the experiment no lead contamination from the package took place.

When dehydrated beef and pork were packed in tin cans and stored at 35 deg. and 110 deg. F. there was greater deterioration of palatability at the latter temperature. In a test of types of containers and methods of packaging, dehydrated pork vacuum-packed in tin cans deteriorated slightly less in palatability than in any other instances.

Results of packaging studies

Properly sealed cans fulfill the packaging requirements of dehydrated meat better than any other tested container. The safest policy, therefore, is to use cans as containers as far as possible. It is desirable but not essential to replace the air in the container by nitrogen or a vacuum in order to maintain high quality in the meat.

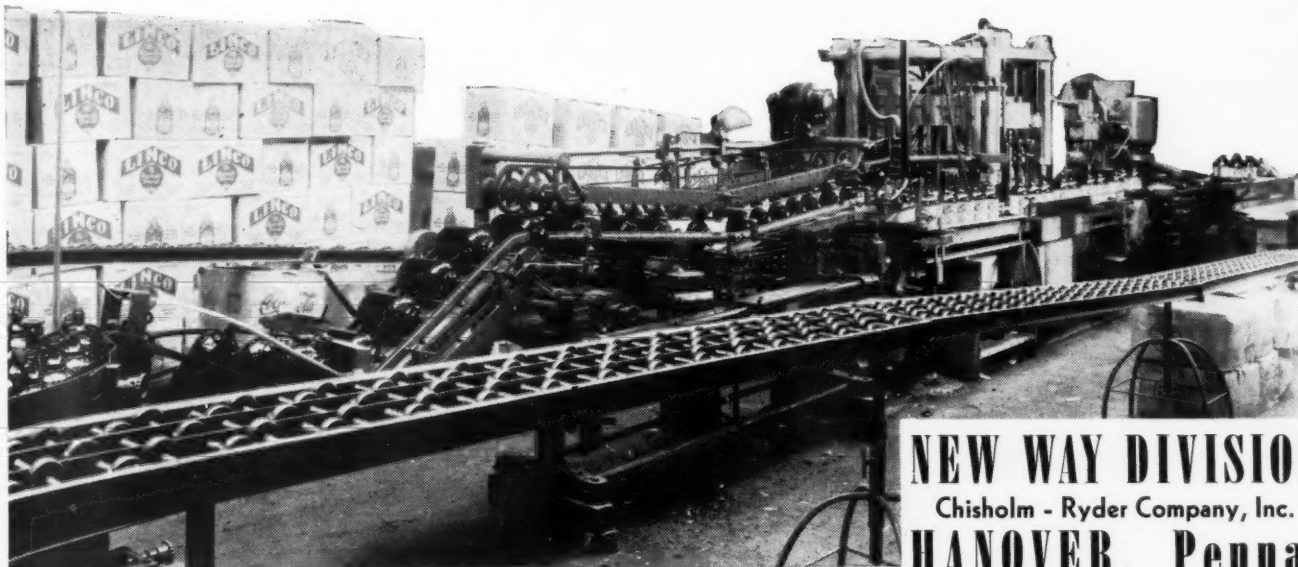
The envelope-type bag is perhaps the best substitute for cans. The most satisfactory container of this kind tested was the lead-foil bag designated as container E. There are probably many combinations of cellophane, glassine and kraft paper, with or without metal foil, that have low enough water-vapor and oxygen permeability to make a satisfactory container.

However, the chief cause of failure in the packages of this type appeared to be leakage through the heat-sealed closure and sides. This may be overcome as the rapidly developing paper-container industry improves its facilities for commercial production of bags of uniform quality and tightness.

A well-made, non-metallic or metal-foil paper package may be expected to give satisfactory performance up to about six months when filled with a good grade of dehydrated meat, subjected to careful handling, and kept under moderate storage conditions in a temperate climate.

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CRCO-New Way Labelers will handle any container which will roll, from $1\frac{3}{4}$ " to $6\frac{11}{16}$ " in diameter and from $1\frac{3}{4}$ " to 9" in height...including also tall bleach bottles, gallon jugs, gallon cals with bale ears. Only a few minutes needed for changeover. Users find the CRCO-New Way Labelers to be the most versatile, long-life, trouble-free machine on the market today.



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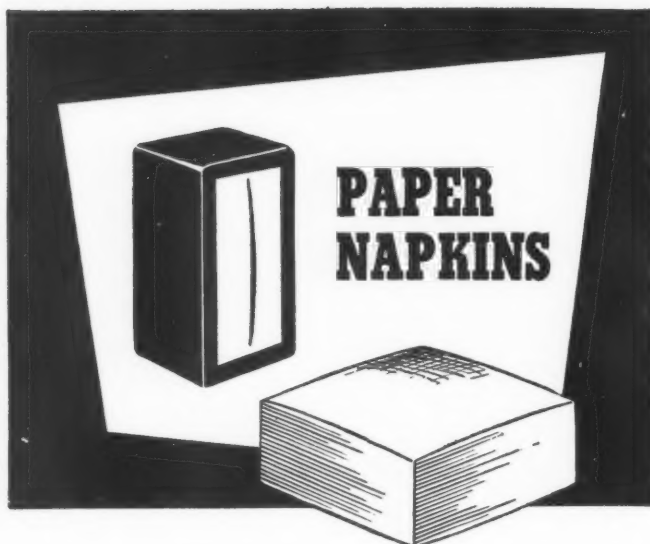


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Department stores . . .

(Continued from page 80) tainers for the merchandise after it reaches the home. At present the higher priced man's hat is supplied with a box that is considered a coveted closet possession. Christmas hosiery packs also act all year in the bureau drawers as a constant promotional reminder of the store and/or the brand. Future design effort can concentrate on supplying packages for these lower-priced goods which will serve this self same promotional and convenience purpose.

Thinking during the past three or four years about self-service and self-selection has been sketchy. Neither of these media will really work until the merchant parallels his effort with a reduction in selling price. The customer will not let the store renege on service unless the price of merchandise is made attractively low enough to offset the diminished service.

The department store finds in self-service and self-selection a bit of dynamite that could blast its character out of existence. It presumes its character to be one that embraces some special style and service. The customer also recognizes these factors as identifying its true nature. While it has as yet found no way to keep this character and still provide self-selection or self-service, instinct tells it that it will be called upon—and soon—to perform a truer obligation to social welfare. Certainly one obligation is to reduce the cost of doing business so that selling prices reflect, more proportionally, the remarkably low cost of American producing ability.

The department store must, through greater selling economies and efficiencies, narrow the wide spread between production and distribution costs. Scientific packaging is one powerful medium to accomplish these lower selling costs.

Tropic proofing . . .

(Continued from page 87) bility of rupture of the wax film due to the liability of the carton to bend and twist.

The problem was overcome by moulding a greaseproof wrapper around the rifle itself and dipping this assembly in micro-crystalline wax.

A further development in the packing of rifles is the use of a spiral greaseproof wrap in place of the moulded wrapper to give a tighter and tougher pack.

An American type of re-usable crate is also shown in Fig. 4. This is intended for a radial engine assembly, and a photograph of the engine in position has been superimposed on the top half of the crate. The bottom part of the crate is of simple pyramid construction, and top and bottom halves can be knocked down for return shipment into a neat compact pile, as shown in the photograph in our illustration between the top and bottom half of the crate.

Among the non-allied exhibits are a number of examples of German packs captured in France. We show one specimen—a small arms ammunition pack (Fig. 7). The outer wooden case is metal lined on its interior surfaces, the top metal lid being sealed by soldering. The ammunition is contained in small cartons packed in larger cartons which may be removed easily from the case by means of the web strap which is interwoven through the fibreboard.

To supplement the visual examination of the various packs

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Has inherent flexibility—complete resistance to animal, mineral and vegetable oils; greases; aromatic and aliphatic hydrocarbons; primary, secondary and tertiary alcohols.

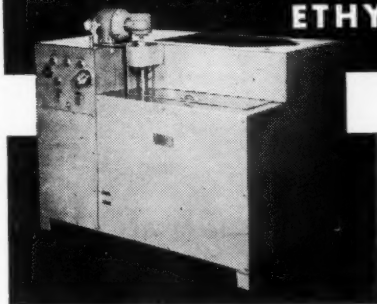
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and the information supplied by the show cards and official guides, there is a technical section of the Exhibition which provides schedules and examples of the various materials and methods which are used in preservation, packing and identification.

These include samples of moisture-vaporproof materials which have been developed as substitutes for the transparent pliable rubber hydrochloride film, largely used by the U. S. Army Air Forces. Some of these newer moisture-vaporproof materials perform more rigorous duties than those for which the original pliable film was developed, and include many with metal foil surfaces.

A letter was sent to the Anglo-American Packaging Committee by General Douglas MacArthur, Commander-in-Chief, Allied Forces, Southwest Pacific. It reads in part as follows:

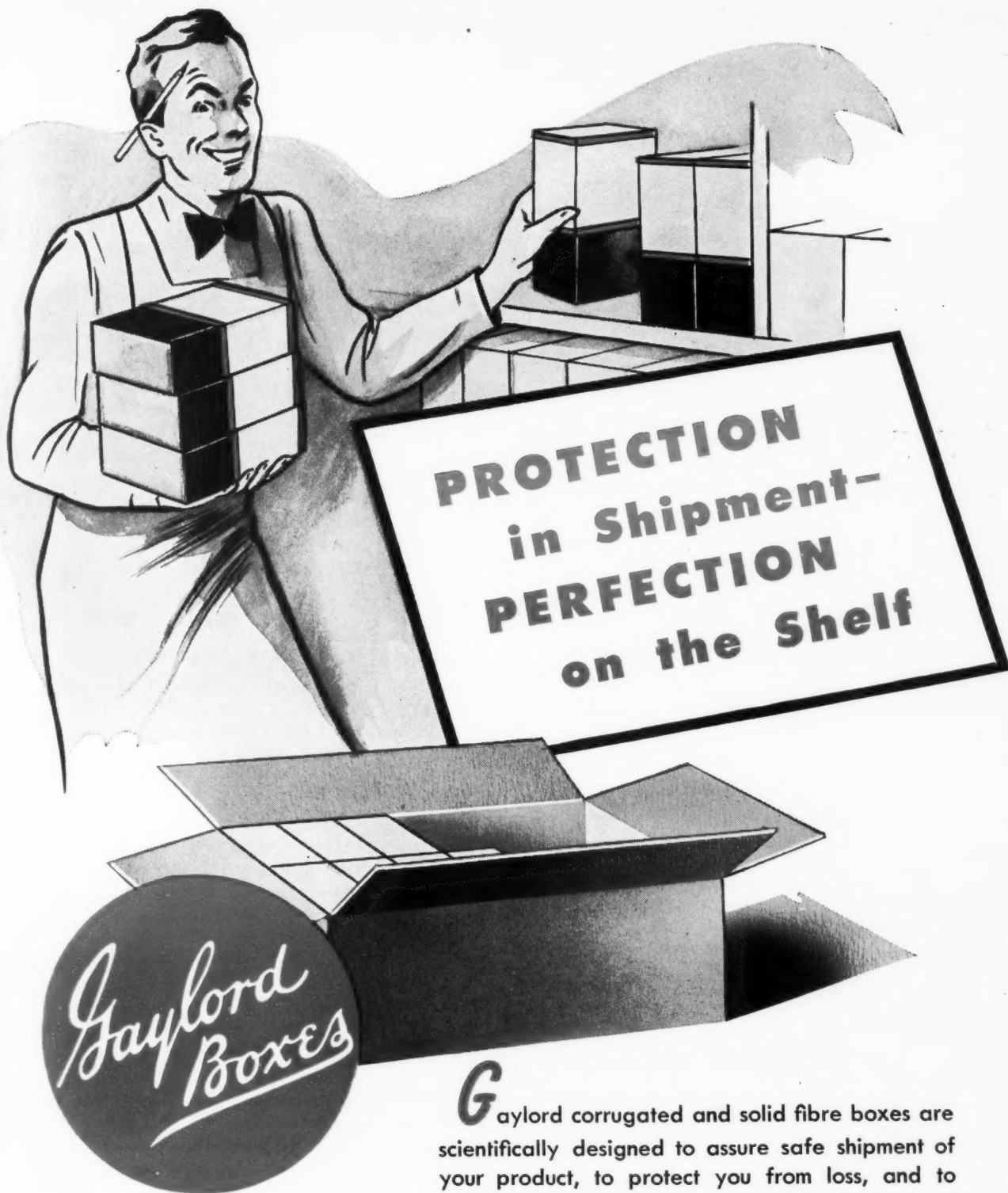
"Our Army is battling in the Tropics, in the swamps, in the wet and humid forest, and in the Southwest Pacific's plantations and jungles. It is of vital importance that the essential supplies for our forces be properly packed and proofed. Actual loss of life results from failure to preserve sufficiently equipment and stores against the devastation of humidity, terrific heat, fungus and all others of the tropical hazards. The troops can suffer a serious loss of confidence by any shipping container failing to deliver, in usable condition, its contents to the man in battle. In addition it signifies a loss of effort in materials, manufacture and transportation. All supplies must be correctly packed if we are to beat the Japs."

The Tropic Proofing Exhibition was produced for the Anglo-American Packaging Committee, and on behalf of the U. S. Embassy in Great Britain, The War Office, The Air Ministry, The Ministry of Supply, The Ministry of Aircraft Production, and Headquarters, European Theatre of Operations, U. S. Army.

American members of the Anglo-American Exhibition Packaging Committee are R. S. McCaffery, executive officer for U.S.; Lt. Col. E. H. Van Wagnen, chief, U. K. Packing & Marking Branch, Army Transportation Corps, and Maj. W. H. Radford, Transportation Corps.

One of three types of rifle packs shown in the exhibit to demonstrate the progress constantly being made in preservation. This is a sniper's rifle in a Method IA pack inside a corrugated carton and a nailed wooden box.





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New techniques . .

(Continued from page 96) one of the most difficult cargoes which must be carried over the "hump" route. To prevent the acid from causing serious damage to the plane in case it should burst from its container, it is placed in comparatively small containers so that, if one bursts, no great damage will be done. The bottles are packed in asbestos which helps soak up any acid that might leak out, and then inserted in a box divided into ten sections, also made of absorbent material.

High-altitude flying requires a new consideration of closures, for the differential in pressure tends to vaporize imprisoned liquids and cause leaks. With the acid containers, a shrink-type seal, such as that frequently used on wine bottles, was first tried but it was found that at high altitudes it tended to dry out and pop off. A plastic closure with a beeswax lining was devised. This is cinched on with a vulcanizing rubber tape that won't shake off with vibration or pop off at high altitude.

Shipment of paint was a problem. In one instance, the top burst off a can of paint thinner while the plane was flying at a high altitude, causing a fire and an explosion. A simple solution to this problem was effected by soldering on the tops and then putting the cans in boxes which will prevent the paint from spilling on the floor in case low outside pressure still causes the closure to come off.

Another simple solution was found to an unusual problem. A certain type of punctureproof inner tube is coated on the inside with a sticky substance which self-seals punctures. The tube must be shipped inflated to prevent the inside surfaces from sticking together. But when the transporting plane reached high altitudes, the inflated tubes expanded so much that they filled the cargo space to overflowing. The solution was to put the tubes inside tires, which prevented their expanding.

Aerial delivery of materials has given rise to new hurdles to be overcome in packaging. This is particularly true in regard to free-fall delivery, in which a container of needed supplies is pitched out of a plane without a parachute. New and stronger boxes for such air-borne delivery have had to be devised.

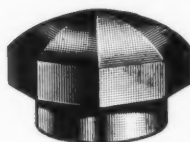
Interesting experiments are being conducted on a box with wings, a variation of the free-fall delivery container, which, when released from a plane, spins to earth, its descent retarded by the wing surfaces. Strong corner reinforcements and careful inner packaging are necessary in this type package to prevent damage to contents.

The A. T. S. C. has learned a lot about cutting time in shipping terminals too. An ingenious slide rule, one of which has been developed for every type of cargo and combat plane, indicates just how the weight should be distributed in the plane. Another time-saver has been the use of a system of steel rods for battening down the load. This system is replacing the use of ropes.

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MORE ECONOMICAL BECAUSE: it requires no pins, staples or other supplies. It gives a permanent, positive seal merely by application of pressure and heat. Uses only 150 watts of electricity.

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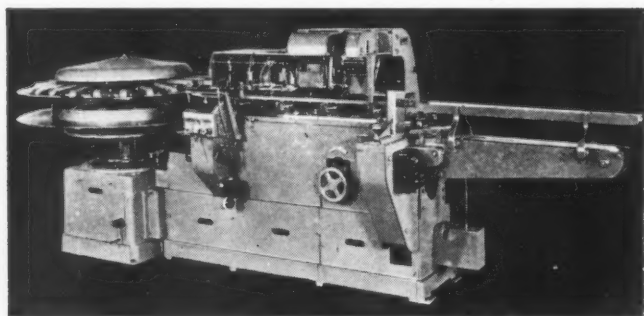
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FOR SUGAR, SALT, FLOUR, COFFEE
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Write for complete information.

CONSOLIDATED PACKAGING MACHINERY CORP.
BUFFALO, N. Y.

Teamwork . . .

(Continued from page 91) mentioned, is the volumetric type, but periodic check-weighing is standard procedure on the production line. The cartons in both sizes, that is, the small half-pound and the two-pound size are delivered to the Kraft plants flat. The half-pound size in being formed has its upper portion glued by the machine, while the lower portion requires no gluing. The two-pound carton, however, comes already glued but folded with an ingenious type of telescope fold. The lower part is made of a kraft boxboard of perhaps 0.030 gauge, scored to fold quickly into shape.

Development of sheet material for the inner bag, devising of cartons, evolution of complicated machinery line—all point to a type of commercial cooperation that accomplishes results for the benefit of all concerned. Throughout, a very important part was played by research, patient experimentation and exhaustive testing; now that the results are beyond question, this full story can be told—and its most significant feature is the four-way cooperation of producer, wrapper supplier, box maker and machine manufacturer.

Commercial production was first concentrated on the two-pound loaf. Market-wise, this was tried on a broad scale in Wisconsin for several months. It proved so popular and had such a favorable effect on sales that it was quickly adopted for national distribution. Shortly thereafter the program was broadened to include various other sizes such as the five-pound loaf and 1/4-, 1/2- and 1-lb. packages.

CREDIT: Coated sheeting, Menasha Products Co., Menasha, Wis. Cartons, Waldorf Paper Products Co., St. Paul, Minn. Machine line, Frank D. Palmer, Inc., Chicago, Ill.

Coatings . . .

(Continued from page 121) metal bodies to metal ends are indeed very tight. However, metal will expand or contract with every temperature change. It is essential that something of a permanently flexible nature be incorporated between the seams. The coating material has proved to be an efficient "seam dope" for all metal containers, because of its flexible nature and insolubility in virtually all products.

The material we have described may be used not only as a coating or impregnating material but also as a laminating adhesive for packaged products that require many varieties of protection. It will add strength, pliability and durability. As a typical example, the material has been used as an interior coating for paint containers and as an adhesive for the laminated paper stock forming the container wall, while the exterior coating is a water-resistant lacquer.

The problem of providing inexpensive, disposable containers having resistance to outside weather and resistance to oily contents is rapidly being solved.

Credit: Coating material, Dunnflex, Thomas W. Dunn Co., New York. Fountain spray machine, Eureka Machine Co., Cleveland. Oil-packaging machine, Packaging Machinery Co., Springfield Mass. Package shown in Fig. 3, left, Reed Container Sales Corp., New York; Fig. 3, right, General Container Corp., New York; Fig. 4, Old Dominion Box Co., Charlotte, N. C.; Fig. 5, J. E. Roach, Forest Hills, N. Y.; Fig. 7, Chicago Carton Co., Chicago (package) and Package Products Co., Chicago (machine); Fig. 8, M. D. Craig Co., New York; Fig. 9, Virginia Barrel Co., Staten Island, N. Y.; Fig. 10, Philadelphia-Carpenter Container Co., Philadelphia.

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BECAUSE THEY ARE
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BRANCH OFFICES: PHILADELPHIA • PITTSBURGH • CHICAGO • BUFFALO • ATLANTA • LOS ANGELES • HAVANA

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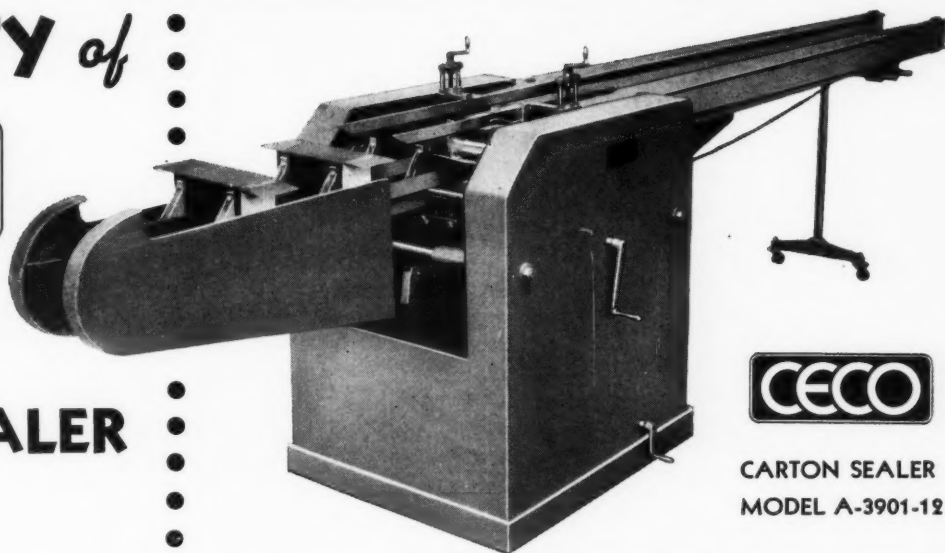
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A Ceco Adjustable Carton Sealer gives you more package production capacity per dollar invested because of its extreme simplicity and flexibility. Simultaneously seals both ends of any size carton from 2 1/4" to 12" deep, from 30 to 120 per minute. No special experience is required for operation. No complicated gadgets to get out of order. An inexperienced operator can maintain and adjust machine setting for different size cartons without special tools. Get details of this flexible, low cost, high production machine today.

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Drying: Bake 15 to 17 minutes at 260-265°F. Peak temperature

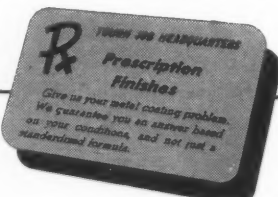
Pertinent Information: CLEAR-COTE V-2584 displays excellent flow, high gloss, fullness, and superior coverage over multiple colored lithographing. It is suggested for use as an economical, presently available, transparent finishing varnish for articles coated prior to fabrication for example cans, closures, and crowns.

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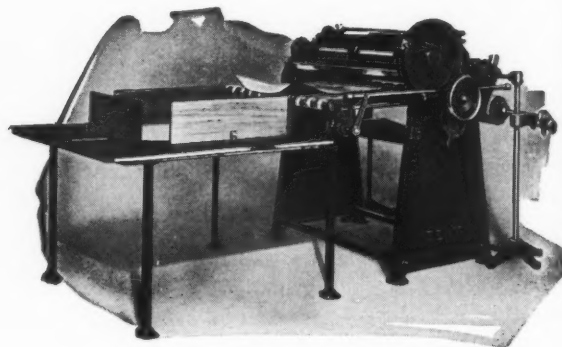
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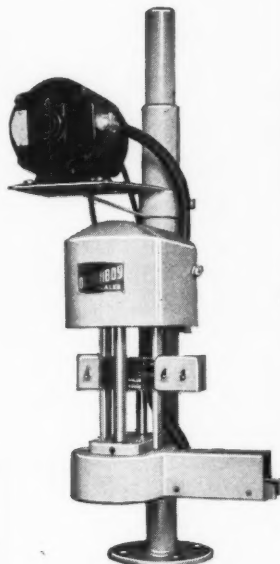
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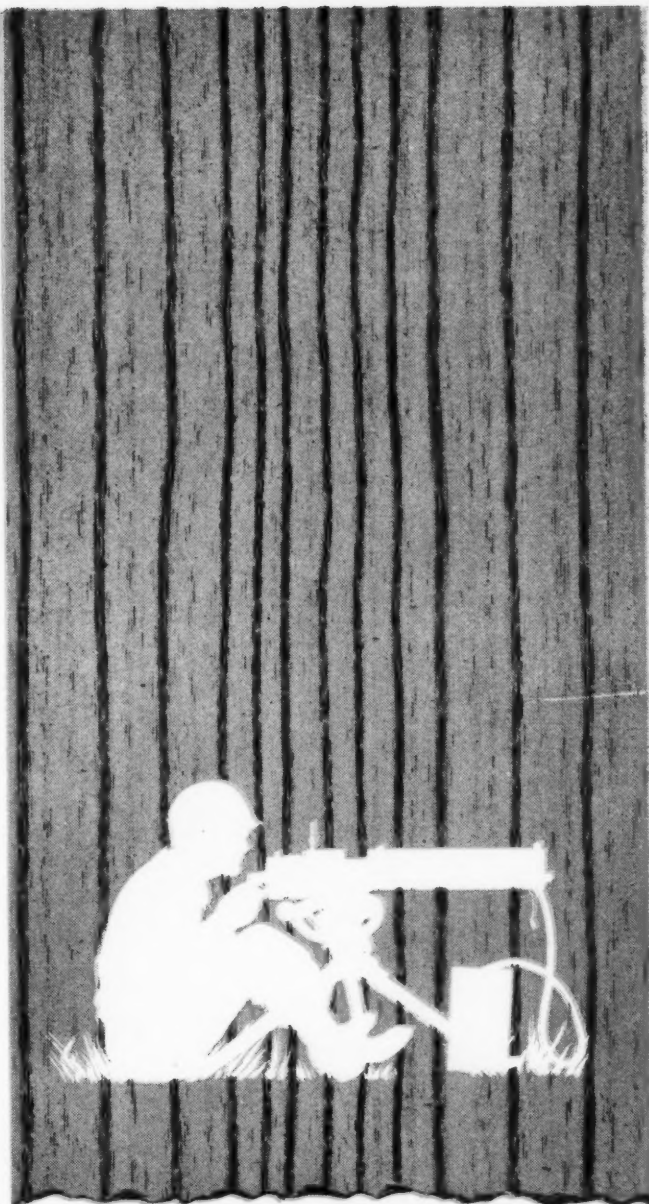
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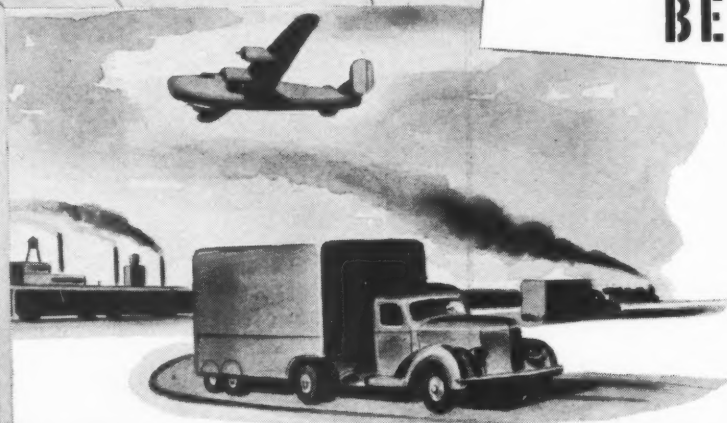
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The "SEAL-SPOUT" automatic inserting machine makes it easy to apply "SEAL-SPOUTS"

to your packages—quickly installed as part of your packaging production line.

Do your postwar planning now.

For best sales appeal improve your package with a sealed pouring device. See Seal-Spout.

Send us one of your packages and we'll return it "Seal-Spouted."

"SEAL-SPOUT"



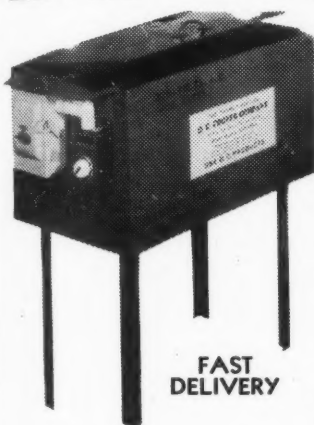
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WAX—Meets Government Specifications AXS 1015

SILICA GEL—Packed 1 oz., 2 oz., 8 oz., 1 lb., 5 lb., bulk



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Specially designed for heating Ethyl-
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For export packaging, 5 gal., 15 gal.,
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COLD PROCESSING TANKS

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in a
**Waterproof
Paper Bag**
for
PROTECTION



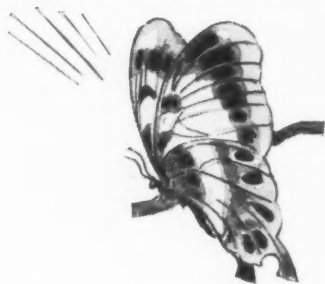
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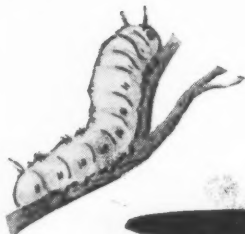
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FRONT AND BECKETT STS., CAMDEN, N. J.

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Flock

SUEDE, VELVET, VELOUR EFFECTS
from ordinary paper and cardboard



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it's the Finish that counts!*

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*Sealed
Against
TAMPERING
AND MOISTURE
INGRESS*



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Seal**

CAP AND SEAL APPLIED AS ONE

Filma-Seal* keeps the moisture out—seals the original qualities in—exposes tampering, prevents contamination. The seal is in the screw cap and you apply cap and seal in one operation. The seal stays on the bottle, safeguarding your product until the consumer peels off the inner seal.

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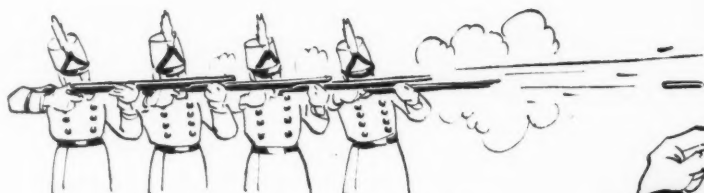
FORMAL ATTIRE FOR FROZEN FOODS

The job of processing quick frozen foods culminates in proper packaging. Not only must food be protected against dirt and grime, the flavor that tickles one's taste buds sealed in, but the appearance of the package must reflect the quality of the product. By means of electronic controls, the Hayssen Wrapping Machine regulates the cutting and wrapping so precisely that package design can be given full scope. Thus, with better package appearance, the food processor has an additional advantage with which to appeal to new customers.

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HAYSEN WRAPPING
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Some people received the impression that Tanglefoot "W-51" Solvent would make ordinary kraft tape as water-proof as SOLSEAL. That is not true.

No Solvent will make ordinary kraft resistant to water penetration.

"W-51" simply provides a BOND that is highly resistant to water, extreme heat and cold. And that's important whether it is used on ordinary kraft tape or the SOLSEAL variety.

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Handle*



ALL THESE TYPES OF PACKAGES IN OUR CUSTOM PACKAGING DEPARTMENT

Yes, we package all types of dry powders, be they chemicals, cosmetics, household products, etc., in cartons, cans, set-up boxes, round paper packages or envelopes.

We do your mixing, filling, weighing, labeling, etc., on high speed automatic equipment.

Our service acts as the packaging department for other businesses.

We can do all your work, or we can do part of it and do it the same way you would handle it in your own plant.

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The engineering experiences of war have developed smart new packages for post-war times.



attractive • weight-saving

Our long experience in the fiber tube industry has given us the "Know-how" to interpret post-war containers. Consult us on your packaging problems.

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OUTSTANDING OPPORTUNITY

for an **Experienced Production Man**

A well-established and expanding food company, located in New York State, manufacturing both canned and packaged products, is looking for a man well grounded in production work to act as Plant Manager. He must have had experience in production planning, raw material handling, Union and employee relations, and the maintenance of high standards of cleanliness and safety.

This position offers a competent man a good salary with an excellent opportunity for advancement.

Answer in detail, outlining past experience, age, present connection and salary. All answers will be treated confidentially. {Persons now in essential war work will not be considered.}

Write today to: Box 271, Modern Packaging.

All classified advertisements payable in advance of publication. Rates: \$5.00 up to sixty words, enclosed in border, \$10.00 per inch.

Classified Advertisements

Publisher reserves the right to accept, reject or censor a classified copy.

Packaging Engineer and Artist—familiar with all types of packaging and packaging materials and designs. Excellent opportunity, including good starting salary and unusual advancement opportunities. Reply Box No. 272, Modern Packaging, giving detailed resumé of experience and salary desired.

Superintendent wanted for midwestern well established folding box plant. Experienced in production with thorough knowledge of equipment. Give full particulars regarding your qualifications and salary expected in first letter. Box 273, Modern Packaging.

MILLER WRAPPING AND SEALING MACHINE

Available at once without priority, used only two weeks, Style MPS with sheet, adjustment range No. 1, Motor $\frac{1}{4}$ HP—110 V, A. C., equipped with foot trip and top wing mounting. J. G. Sowerwine, P. O. Box 430, Huntington, Indiana.

Wanted—Commercial Artist: Position open as Art Director to man or woman of pleasing personality who can prove exceptional creative talent and executive ability. Experience desired in printed industrial packaging papers and packaged gift wrapping papers. Must have comprehensive knowledge printing and be well acquainted with free lance commercial designers. State qualifications and salary first letter. Box 274, Modern Packaging.

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Informative, practical, Shipping Instruction Brochures compiled from the experience of successful executives, on every angle of packing, marking, sealing, transport, handling and all related subjects. The set of ten Shipping Brochures—\$15.00. The first Brochure sent on approval.

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CHEMISTS AND PACKAGING ENGINEERS

Leading paper manufacturer and converter situated in New York State has position with excellent future for packaging engineer and chemist for their bag research and development division, including work on heat sealing, also study of special papers and other raw materials. Present staff is small and must be considerably enlarged for now and post-war. Write fully as to education, experience and salary requirements. If your present work will not terminate for several months we would still like to hear from you. Box 275, Modern Packaging.

WANTED SALESMAN

Old established Southern paper merchant and box manufacturer requires salesman. Must be experienced in selling coarse paper or paper boxes and willing to move to South for permanent residence. Possibility of promotion for proper person to position of branch sales manager. State previous experience and give complete personal history. Please write Box 276, Modern Packaging.

We have facilities for packaging, collating and shipping, located approximately 100 miles from New York, and are desirous of contacting manufacturer or jobber who could make use of these operations to distribute to his accounts according to specifications. Address Box 277, Modern Packaging.

UNUSUAL OPPORTUNITY

Wanted by established, progressive packaging machinery manufacturer, a sales engineer with technical training, familiar with food packaging to promote the sale and distribution of modern packaging machines throughout the middle west. Future limited only by your ability. Write giving previous connections, qualifications, and full details. Chicago office location. Box 268, Modern Packaging.

PACKAGING ENGINEER

Experienced in developing complete packaging specifications and originating improvements in packing methods for wearing apparel, major home furnishings or small fragile goods. Mail order, wholesale or boxboard industry sample design experience desired but others with good background will be considered. Box 278, Modern Packaging.

Mechanical Engineer—to work in technical department of folding paper box manufacturer located in Baltimore, Maryland. Experienced in paper box making machinery desirable, but not necessary. Give full details of experience, education, etc. Also salary desired. Excellent opportunity now and post war. Permanent work with unusual advancement opportunities. Reply Box No. 279, Modern Packaging.

WANTED PURCHASING AGENT

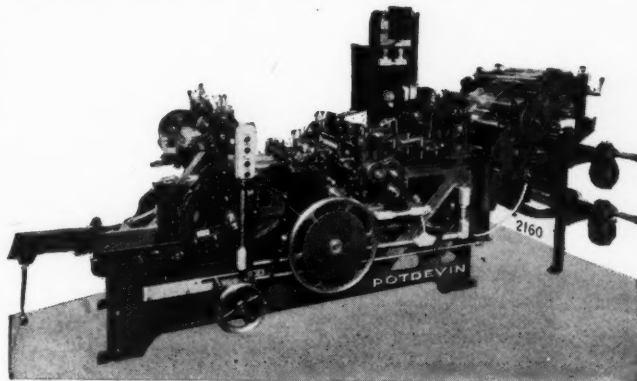
Purchasing Agent, preferably between ages of 30 and 40, by large old established Southern wholesale paper jobber. Must have complete background of purchasing coarse papers, twine, etc. State previous experience and give complete personal history. Please write Box 280, Modern Packaging.

CREATIVE DESIGN effectively applied in product styling, modeling, packaging, literature layout, illustration, decor, lettering, calligraphy. Visualization, analysis, rendering. Medium, subject, technic versatility. Designer—Illustrator seeks connection with manufacturer, distributor, or promoter who recognizes good taste, character, originality as being functional integrals in the physical appearance of his product or printed message. Please write in detail. Address: Sansgaud, General Delivery, Seattle, Washington.

As its contribution to orderly re-employment, MODERN PACKAGING will print free of charge in its "Positions Wanted" classification, one ad, not to exceed 20 words, for each honorably discharged veteran of the armed forces of the United Nations who has had previous packaging experience.

POTDEVIN CELLOPHANE BAG MACHINES

produce single-wall or "duplex" bags that resist side-splitting and top-splintering; bags with projecting lip—easily opened for filling. The new POTDEVIN pinch cut-off makes an elliptical or straight lip with smooth edges. Several other exclusive features and POTDEVIN bag machine patents make this possible.



PMC 2160. POTDEVIN Model 111-C adjustable range flat and square cellophane bag machine complete with electric eye-operated compensator for converting plain or pre-printed material. FLAT bag range $3'' \times 6\frac{1}{2}''$ to $10\frac{1}{2}'' \times 16\frac{1}{4}''$.

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1244—38th Street
Established 1893

Brooklyn 18, N. Y.
Tel. Windsor 6-1700

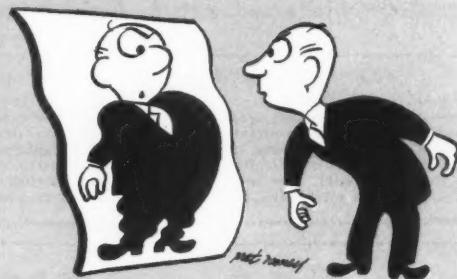
"Filmonize" Transparent Tape is Transparent



Would you buy a new car with a discolored windshield?



Would you buy war stockings if you could get nylons?



Would you buy a distorting mirror?

Clear as spring water — you can see right through to the core — that's "FILMONIZE" Transparent TAPE!

We welcome comparisons. Take a yard or a roll of "FILMONIZE" Transparent TAPE, place it beside the TAPE you now use and you'll see the difference. "FILMONIZE" SELF-SEALING TAPE speaks for itself.

Call your local distributor for a demonstration today. He can deliver "FILMONIZE" SELF-SEALING TAPE in quantity for all industrial or commercial uses.

FILMONIZE SETS NEW STANDARDS

- Easy to use... strips easily from roll.
- No "curl-back"... no tangle... no waste.
- Seals without water.
- Widths from 1/2" to 18" throughout the "FILMONIZE" line.

Filmonize
TRADE MARK REG
SELF-SEALING TAPES



INTERNATIONAL PLASTIC CORPORATION

MORRISTOWN, NEW JERSEY

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MODERN PACKAGING
BRESKIN PUBLISHING COMPANY
 122 East 42nd St. New York 17, N. Y.

RESINOX

PACKAGING



- thermosetting
- heat-resistant
- strong
- stable
- colors: dark, opaque
- water, weather-resistant

(over)

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Resinox is Monsanto's tough, durable phenolic plastic. In caps, closures, boxes and re-use, premium containers, Resinox has proved its sales-getting potentialities by its

- built-in permanent color
- rigidity and strength
- lightweight
- molded-in decoration
- sleek lustrous lines

All the profit-making advantages will again be at your command to add that luxury touch to your packages. Because Resinox packages and components are molded on high speed, automatic or semi-automatic equipment, they will again come to you in mass production quantities at no premium in cost.

Resinox is one of the rapidly growing family of Monsanto packaging plastics. Would you like complete up-to-date information on Resinox or other Monsanto plastics for use in your packaging plans, or perhaps special counsel on a particular problem direct from a Monsanto plastics consultant? If so, simply write, wire or phone: MONSANTO CHEMICAL COMPANY, Plastics Division, Springfield, Mass.

RESINOX FOR PACKAGING FACTS:

STRENGTH	to perform in service and to resist strong torque action of automatic capping machines
	Tensile strength — 4200-8000 lbs./sq. in.
	Compressive strength — 20,000-30,000 lbs./sq. in.
	Flexural strength — 8000-12,000 lbs./sq. in.
	Impact strength — 0.2 — 8.00 ft. lbs. per in. of notch 1/2 x 1/2 in. notched bar, Izod Test
STABILITY	Water absorption (after 24 hrs.) 0.01 — 0.06 Effect of age — None
HEAT RESISTANCE	Distortion — 240-285°F.
GENERAL PROPERTIES	Colors — Darker Opaques Specially formulated materials for minimum odor and taste. Rockwell Hardness M85 — M125

The broad and versatile Family of Monsanto Plastics includes: Lustron polystyrenes • Cerex heat resistant thermoplastics • Vinyl acetals • Nitron cellulose nitrates • Fibestos cellulose acetates • Resinox phenolics • Thalid for impression molding • Resimene melamines • Forms in which they are supplied include: Sheets • Rods • Tubes • Molding Compounds • Industrial Resins • Coating Compounds • Vuepak rigid, transparent packaging materials.

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PLASTICS

SERVING INDUSTRY...WHICH SERVES MANKIND

VUEPAK



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When you package your product in BALL glass containers you've arrived at a selling combination which clicks, opening the door to volume and profits. A well-designed, crystal clear BALL glass container displays color and texture, factors in the judging of your product's quality and goodness *before* it is purchased and tasted or used. Give the consumer a chance to judge. And give your product its best possible chance to *sell* itself—in transparent, sturdy BALL glass containers.

BALL standardized featherweight containers meet every packer's requirements. After Victory, additional designs will be available.



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General Offices
MUNCIE, INDIANA, U. S. A.

Before every
*Successful
 Package*
 come these three



THE TECHNICIAN

First, Shellmar technicians visit your plant and make a personal study of your packaging, handling and production problems.

THE ENGINEER

Second, Shellmar engineers submit your product to extensive laboratory testing in conjunction with various functional materials.

THE DESIGNER

Third, Shellmar package designers create a colorful and eye-appealing design to insure maximum attention to the product.

Only the combined knowledge and skill of these three packaging experts can assure your product a truly successful package. Although our actual production is still largely devoted to war, Shellmar's staff of technicians, engineers and designers are ready to work with you now.



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